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REPORT ON LOBOTOMY STUDIES AT THE BOSTON PSYCHOPATHIC HOSPITAL [1]

M. GREENBLATT, M.D., R. E. ARNOT, M.D., J. L. POPPEN, M.D., AND W. P. CHAPMAN, M.D.

In the latter part of 1943, a project was organized at the Boston Psychopathic Hospital for the treatment of psychiatric patients by means of prefrontal lobotomy—a surgical operation advocated originally by Egas Moniz of Portugal and Walter Freeman of this country. The surgery was done by Drs. Gilbert Horrax, James Poppen and other members of the neuro-surgical department of the Lahey Clinic, acting as surgical consultants, and the psychiatric work by the regular staff of the Boston Psychopathic Hospital. Although this form of therapy was approached originally with considerable skepticism, after 3½ years of experience in a wide variety of patients, all of whom had been given a hopeless prognosis, we now believe that prefrontal lobotomy has won a definite place in the treatment of serious mental diseases.

Instead of approaching from the temporal region, Dr. Poppen has preferred to operate, as did Lyerly, by means of a superior approach making a trephine opening one inch in diameter, about 4 cm. anterior to the coronal suture and 4 cm. lateral to the midline. The main point is that everything is done under clear visualization. The plane of the section passes just in front of (sometimes through) the anterior horn of the lateral ventricle ending below at the border of the sphenoid ridge. All of the white fibers in this plane are severed with due regard for the blood supply. The precision of location of the plane of section is, of course, a doubtful point, Dr. Poppen being of the opinion that the planes of section must all lie within a band that is at most two centimeters wide.

The decision for operation was made by the psychiatric staff, the prime criterion being that the patient had had an adequate trial of therapy, would not profit from any more of the standard treatments and could, therefore, be considered a hopeless case. With few exceptions all these patients had previously received electric shock treatment, insulin shock treatment or both and some had received prolonged intensive psychotherapy. The majority of our patients were chronic state hospital cases who were suggested for operation by the superintendents of the various Massachusetts state hospitals. In not a few instances the selection was made on the basis of very disturbed behavior with the inherent difficulty of caring for the patient.

Once the criterion of hopelessness was established, the appraisal of the physical condition and capacity to withstand the operation became important. The great majority of our patients were physically well and presented no exceptional operative risks; however, in view of the hopeless nature of the psychosis and the willingness of the relatives to take the risk, a few aged arteriosclerotic and cardiac cases were accepted for operation.

From October 1943 to April 1947, 247 patients received this operation at the Boston Psychopathic Hospital. Two cases were done in 1943, 12 in 1944, 58 in 1945, and 134 in 1946. Of the 154 cases done before October 1946, we are considering a group of 147 cases on whom we have adequate follow-up data to April 1, 1947—making a minimum follow-up period of 6 months and a maximum of 3½ years.

The report of our experiences is divided into two parts: Part I. Clinical Results; Part II. Research Studies.

I. Clinical Results

Eleven cases have expired during the follow-up period; only 2 of these, however, could be considered operative deaths. The

[1] Read at the 103d annual meeting of The American Psychiatric Association, New York, N. Y., May 19-23, 1947.

These studies were conducted under the direction of Dr. Harry C. Solomon, and with the collaboration of Drs. C. P. Coon, A. S. Rose, M. Rinkel and Mr. C. Atwell.

other 9 cases died 2 or more months after operation and following discharge or transfer from the hospital. The 2 cases whose deaths could be attributed to surgery were females, aged 41 and 56 years respectively, who died 11 and 5 days post-operatively after developing convulsive seizures. In one, at post-mortem, a hemorrhage was found in the operative site of the left hemisphere which had ruptured into the left ventricle. In the other, the post-mortem cause of death was given as acute cardiac failure.

Two operative deaths in 147 operations constitutes a surgical mortality of 1.4 percent which is lower than that generally given in the literature. The low mortality (especially in view of a number of aged and infirm cases) and the smooth post-operative course typical for so many of our patients are both a tribute to the skill of the neurosurgeons. Most of our patients are up and about in 4 to 5 days.

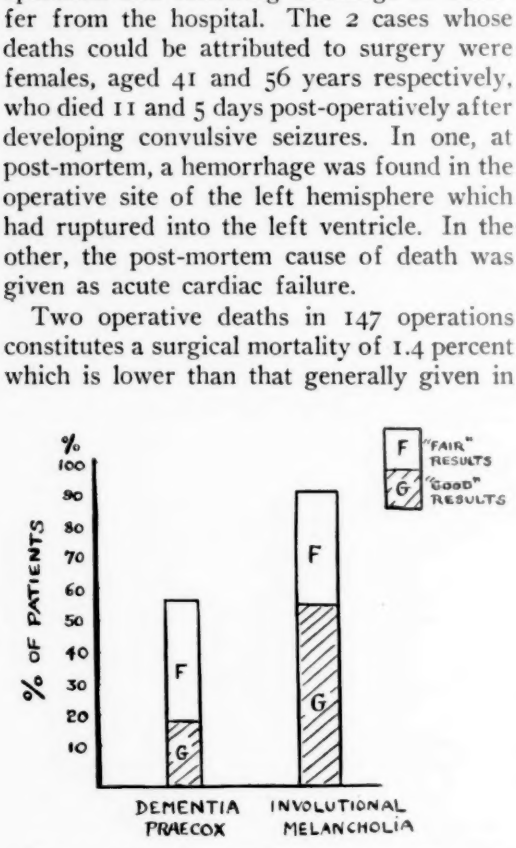

FIG. 1.—Percentage of "fair" and "good" results of lobotomy in cases diagnosed dementia præcox and involutional melancholia.

The clinical results are shown in Fig. 1. By "good condition" is meant that the patients are free from psychotic symptoms and are able to work. By "poor condition" is meant that the patients still suffer from gross psychotic symptoms and are a burden to the family or the community. The "fair" results are those patients with varying degrees of alleviation of psychotic symptoms; many have made a better adjustment, are easier to manage, or are able to work in the hospital. The hospital superintendents and the family are usually satisfied that there has been a definite gain and that the operation was worth doing.

Briefly the operation was worth doing in 88 cases (65 percent of the total); gratifying results were achieved in 36 of these cases (26 percent of the total); and stellar results were achieved in a dozen cases (9 percent of the total).

Our results by clinical diagnostic categories roughly parallel those already reported in the literature. Of a rather large group of dementia præcox cases (98) 20 percent did well (good condition), 37 percent are in fair condition, and 40 percent are in poor condition. Paranoid dementia præcox cases, on the whole, fared best and hebephrenic dementia præcox fared worst, but some good results were obtained in every category of schizophrenia. The results for involutional psychosis are very encouraging, for 13 out of 14 improved and 8 of the 14 are now in "good condition." Two of 4 obsessive-compulsive psychoneurotic cases are in "good condition" and 2 are in "fair condition" on April 1. We are well aware of the shortcomings of diagnostic labelling and realize that some of these cases would bear other labels in other hospitals.

Our experience with schizophrenic patients can be summarized in terms which are familiar to the psychiatrist. Those patients with a sounder pre-psychotic adjustment, with an abrupt onset, with worry, fear, and depression, with relatively simple delusional systems, and with some residual cohesion or integration of the personality fared best with lobotomy (although they had failed to respond to other measures). However, prediction of results with lobotomy in schizophrenic cases is not infallible and surprises occur.

The age of the patient at the time of operation in relation to the eventual clinical result is summarized in Fig. 2. The cases are arrayed in 3 groups: those under 25 years of age, 25-45 years of age, and over 45 years of age. No remarkable effect of age on lobotomy result is evident.

We have analyzed the results in terms of duration of hospitalization prior to lobotomy. It is interesting that for our cases the dura-

tion of hospitalization prior to lobotomy has had no remarkable effect on the outcome.

We have analyzed the effect of duration of hospitalization on the percentage of cases that could be sent home after lobotomy. Here a fairly clear trend is noted and there is some internal consistency despite relatively small groups. Fig. 3 shows that home discharge was possible for many of those hospitalized for short intervals prior to lobotomy and for few who had been hospitalized for long intervals before lobotomy. A patient who has been hospitalized consecutively for many years has broken most, if not all, his ties with

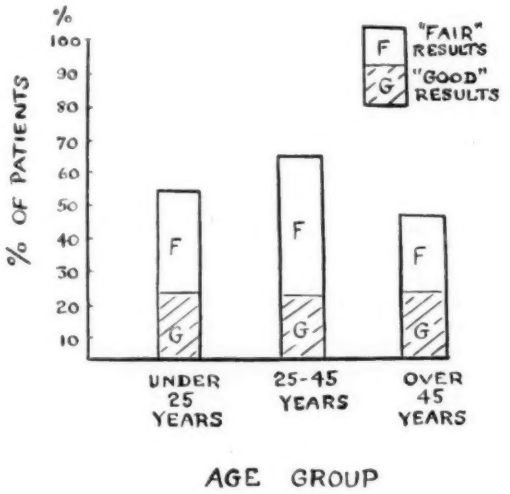

FIG. 2.—Percentage of "good" and "fair" results following lobotomy in relation to age group (under 25 years; 25-45 years; and over 45 years).

his environment; and even if he does well after lobotomy, there may be no home to receive him.

In addition to study of the total clinical picture, a review of specific symptoms was made in order to determine which symptoms were most frequently alleviated by lobotomy and what new symptoms arose after lobotomy. The effect of lobotomy on clinical symptoms may be considered as follows:

(A) There are certain symptoms which are so regularly relieved that one may consider lobotomy almost specific for them. These symptoms include "nervousness," tenseness, uneasiness, fear, worry, anxiety, over-conscientiousness, obsessiveness, and meticulosity. There may be other symptoms which belong in this category. We do not imply that these symptoms are invariably relieved but that they are remarkably diminished or disappear in a very high percentage of cases. In a very few instances these symptoms appeared after lobotomy or were increased by lobotomy.

(B) A second group of symptoms may be described which are less frequently relieved by lobotomy and often are merely alleviated or partly allayed. The patient then becomes a more tractable citizen of the community or hospital. These symptoms are: depression, associability, combativeness, hallucinations, and delusions.

(C) A third group of symptoms are important because they appear for the first time

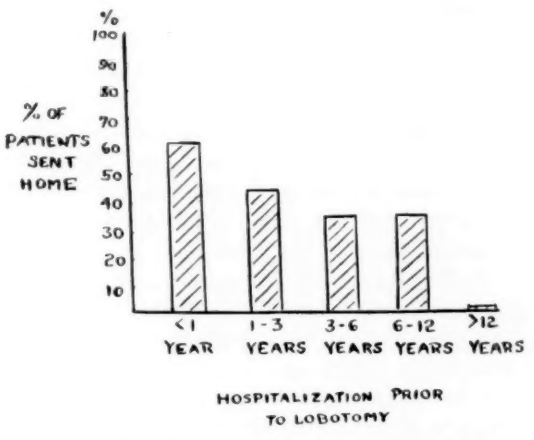

FIG. 3.—Percentage of patients sent home in relation to the years of continuous hospitalization prior to lobotomy.

after lobotomy in a good many cases. These are: laziness, irritability, moderate untidiness and carelessness, indiscretions of speech, wetting, gain in weight, and seizures.

Undoubtedly the most consistent postoperative complaint of relatives is "laziness"—by which they may mean inertia, lack of initiative, spontaneity or drive, tendency to delay, morning lounging, etc. Unfortunately, irritability is often shown when relatives try to force these patients to do something. Gain in weight varied from 5 to 60 pounds and increased appetite and intake go along with it. (Changes in glucose metabolism have been demonstrated in our laboratory.) Some patients who may have preserved initiative and interest have, nevertheless, shown callous attitudes and blunting of finer sensitivities

which have gotten them in trouble at home and at their jobs. For instance, one mild and meek teacher of physical education, depressed and sexually inadequate for years, after lobotomy became sexually potent, which pleased his wife very much; but had a tendency to fly off the handle easily, which frightened the wits out of her; on his job he took to cuffing out the boys at slight provocation and committed many indiscretions of conduct which led to his discharge. When he returned to the hospital, his wife was in tears but our patient took it all with philosophic calm.

Wetting is a frequent post-operative complication which concerns nurses in particular. Almost 20-25 percent of our patients continue to wet for longer than one week; the difficulty may go on for months but with gradual clearing. We know of no case that has continued to wet persistently after operation who was not a wetter before operation. Regular toileting every 2 to 3 hours gets the patient's bladder emptied sufficiently often to keep the nursing morale above the breaking point.

Epileptiform seizures have occurred in 10 percent of our cases. They are usually sporadic, and do not appear to alter the clinical course seriously. If, however, they occur in the immediate post-operative period we are inclined to view them with alarm inasmuch as the 2 of our cases recorded as surgical deaths died following seizures.

II. Research Studies

A. The *psychological tests* used to investigate the effects of lobotomy were the Rorschach and the following abstraction tests—Goldstein Block Designs, Weigl Form-color Sorting, Color Sorting and the Shipley test for abstraction. Records before and after lobotomy were obtained on 35 patients. Approximately 70 others were tested either before or after operation, the results of which tests help to validate the conclusions from the more complete examination.

In the Rorschach tests the patients after lobotomy showed much more perseveration, more stereotypy, and less fantasy or creative imaginativeness. There is evidence of reduced spontaneity and initiative. Despite a narrowing or constriction of the range of reactions, there are indications of freer emotional expression and fewer restrictions on the patient's affect. These changes frequently interfere with judgment.

The noteworthy findings on the various abstraction tests were these: Most patients exhibited slightly more concrete performance and poorer abstraction. Indecision and increased effort to perform the task were noted on the Goldstein series. Difficulty in shifting attitudes (a rigidity of mental set) was outstanding in the Weigl Form-Color Sorting test. Abstraction difficulties noted on the Shipley test were difficult to evaluate because the patients exerted little effort and responded with practically no regard for the problems ("slap-happy attitude").

Three cases have been selected for examples:

(1) Mr. A., age 56, when first examined pre-lobotomy showed considerable preoccupation with obsessive trends, withdrawal from reality and no impairment of abstract performance. Immediately after operation his work on the abstraction material was unchanged (no impairment) but on the Rorschach he gave a completely stereotyped record. Three months later, there was some impairment in abstraction and the Rorschach again consisted of stereotyped responses. Nine months after the original operation and 2 months after a second operation, the psychological picture was unchanged over the last examination. The final examination 2½ years after the original operation showed some improvement in abstraction and less stereotypy on the Rorschach.

This case is remarkable because of delayed impairment of abstraction after the first operation, and eventual improvement in abstraction abilities, despite a second operation.

(2) The second patient, Mr. B., age 31, whose pre-lobotomy record can be summarized as showing obsessional traits, sexual preoccupations, inferiority feelings and feelings of guilt, gave a completely different and somewhat alarming picture on his post-lobotomy test. There was considerable evidence of strong aggressive trends. In addition, the second record was filled with violence—*Card I:* "a cat about to do something vicious"; *Card IV:* "the body of a man burned up, it's lying on the pavement, there's no sheet pulled over it yet, it's all scorched." In response to the question, "How do you feel after your operation?" he said, "I feel better, I haven't gotten into any rows but I feel as though I might." This case is a remarkable example of hostility released by lobotomy.

(3) The third patient, Mr. S., age 39, before operation showed an essentially schizophrenic picture with evidence of strong obsessive-compulsive trends. Five months later no response was obtained

on three cards (4, 9, 10) and the responses on the others were completely stereotyped. The abstraction tests showed slight impairment with the usual disregard for the problems on the Shipley test. This case presents a picture quite typical for the lobotomized schizophrenic individual—*i.e.*, a paucity of responses, extreme stereotypy and perseveration, and slightly impaired abstraction.

B. A summary of *physiological* experiments designed primarily to test the changes in the autonomic nervous system resulting from prefrontal lobotomy follow:

(1) The sympathetic nervous system was tested pharmacologically pre- and post-lobotomy by the intravenous injection of 0.5 mg. of epinephrine (1:1,000). The elevation of blood pressure following epinephrine injection was much greater in patients after lobotomy than before—the response was approximately doubled. Pilomotor reactions and shivering were more frequently observed in patients after lobotomy than before.

(2) The parasympathetic nervous system was tested by compression of the carotid sinuses and by following the clinical electroencephalographic and electrocardiographic effects. Slowing of the heart, and cardiac arrest were obtained more frequently and with greater facility after lobotomy than before lobotomy. These manifestations indicate greater sensitivity of that part of the carotid sinus mechanism regulating the heart action—an effect which is mediated by way of the vagal branch of the parasympathetic system.

With sustained compression of the carotid sinuses or of the common carotid arteries bilaterally, it is possible to obtain tonic-clonic convulsive seizures of short duration in a high percentage of individuals. This effect we believe to be due largely to cerebral anemia from circulatory occlusion. The seizure is accompanied and introduced by an acute outburst of high voltage slow waves at 3 per second in the EEG arising from all cortical areas.

After lobotomy, we have observed an increased susceptibility to seizures (and the accompanying EEG changes) induced by compression of the carotids in almost all patients.

The increased response of the heart to carotid sinus stimulation, and of the blood pressure to epinephrine injections which were observed in patients after lobotomy indicates that this operation releases both divisions of the autonomic nervous system from a controlling influence, and that controlling or regulating function for the vegetative nervous system is located in the frontal association areas.

The increased susceptibility to convulsions resulting from carotid occlusion suggests that post-lobotomy the brain is more sensitive to acute cerebral anemia.

C. *Blood Pressure Studies.*—Early in our experience with lobotomy, it was observed that following the operation, blood pressure was reduced and in several patients with hypertension the blood pressure fell to normal levels for considerable periods. These observations stimulated an investigation which has now been in progress 10 months. These studies consist in (1) multiple blood pressure readings before and at intervals after operation in normotensive and hypertensive patients, and (2) observation of blood pressure and pulse rate in response to various stimuli.

A slight but definite reduction in blood pressure was observed in 11 normotensive individuals 15 to 30 days after operation. At the end of 3 months, the blood pressure values in all but one case returned approximately one-half way to the pre-operative levels. At 6 months, the blood pressure values returned to the pre-operative levels. In the one case, at 3 months and again at 6 months, the blood pressure was significantly higher than at any time previously observed by us. A history of hypertension several years previously was obtained in this case.

Eight patients with persistent hypertension have been studied before and for 1 to 5 months after lobotomy. In all cases there was a significant fall in blood pressure in the first 2 to 4 weeks following operation. However, 7 of the 8 cases have subsequently shown an elevation of blood pressure to at least the lower range of the pre-operative readings.

During the periods of testing in both groups of patients, factors such as cooperation, restlessness, irritability, apprehensiveness, general muscular tension, were especially noted and were essentially unchanged following the surgery.

The blood pressure and pulse rate in response to the following stimulus situation are being studied in patients before and after operation in both normotensive and hypertensive patients.

(1) Immersion of hand in ice water for one minute.

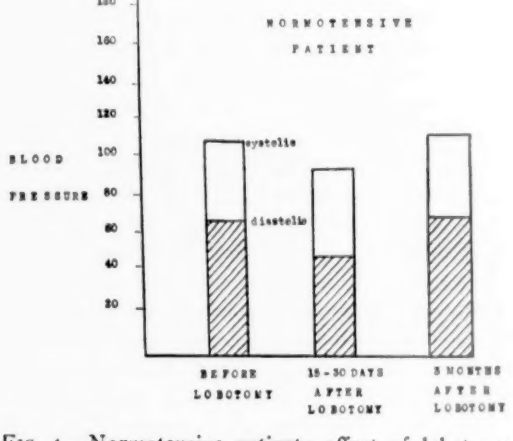

FIG. 4.—Normotensive patient: effect of lobotomy on the systolic and diastolic blood pressure.

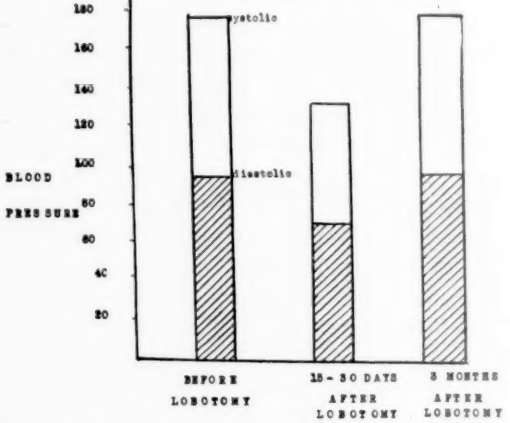

FIG. 5.—Hypertensive patient: effect of lobotomy on the systolic and diastolic blood pressure.

(2) Induction of deep pain by graded pressure on the tendo-achilles.

(3) Startle reaction by pistol shot.

(4) Carotid sinus massage.

(5) Graded exercise.

(6) Changes in posture.

At present, no definite and persistent changes in the blood pressure and pulse rate response to these stimuli have been observed, with the possible exception of the ice water tests. In these, the blood pressure at 15 days post-operative rose with the ice water stimulus to the same absolute levels as before operation; in view of the lower basal blood pressure reading at the period, the percent change of the blood pressure was greater in the operated patients.

Studies on more patients and longer periods of observation will be essential to arrive at satisfactory conclusions of the effect of lobotomy on autonomic control of blood pressure.

CONCLUSION

It is clear that the results of prefrontal lobotomy are quite variable. Clinically a few cases are dramatically improved and may be restored to a healthy efficient life in the community, a rather large number are partially improved or rendered more comfortable, and a good many are essentially unchanged. There is always a small but definite risk to life, and there is always the possibility of producing new and undesirable symptoms. As yet, we are quite unclear as to the exact indications for the operation. However, we would venture the opinion that by selection of early and relatively well-integrated cases, we would get a better percentage result. We would go on record as saying: that lobotomy is a good method, perhaps the foremost method, for the treatment of the chronic mentally ill patient.

The changes in the personality are very variable and complicated, and great caution should be exercised in interpreting psychological results. There is no question that prefrontal lobotomy offers a very rich field for research.

DISCUSSION

WALTER FREEMAN, M. D. (Washington, D. C.).—The results of the Boston Psychopathic Hospital are good but they could be improved by attention to three aspects which we have found of considerable importance. The first of these is the choice of the patient on the basis of the emotional tension still manifest. Take a wildly excited schizophrenic early in the course of his disease and the outcome will almost always be favorable. I was very much impressed with the high discharge rate

of the patients in this series that were operated on in the first year of hospitalization.

The second is the choice of the family. Preference should be given to patients whose families have not closed ranks and assigned their member to a mental hospital, but who still show an interest in the postoperative rehabilitation. Given a helpful, cooperative family, a great deal can be done even in the most chronic cases of schizophrenia and of agitated depression.

The third is the choice of the operation. With the refinement and precision introduced by Watts and myself, we believe that the "band of the operation" which is set by the authors at 2 cm. should be greatly narrowed. In fact before each operation Watts and I go over the situation and decide where to make the incisions with relation to the sphenoidal ridge. In severe chronic cases with deterioration, the incisions have to be made 6 to 10 mm. behind the plane of the sphenoidal ridge if results are to be achieved. On the other hand, in elderly patients this results in extreme inertia and, in better preserved cases, in needless sacrifice of personality achievement. It is remarkable how little frontal lobe is required for a person to earn a living. The surgeon should call his shots before operation and should mark them with some opaque medium afterwards so that if he fails he will know where to make them again. Prefrontal lobotomy can be a precise and very exact operation. We do not consider the open operation meets these requirements. The limit of tolerance for deviation of the incisions should be 2 mm. rather than 2 cm.

During this convention I have spent much of the time when I should have been at meetings, calling up and interviewing our former patients from the New York area. These amount to 50 in number with 1 operative fatality, 3 subsequent fatalities and 7 cases too recent to estimate. Of the 38 cases, 19 are usefully occupied and 8 are hospitalized.

It is very encouraging to see what a good job the workers at the Boston Psychopathic Hospital are doing. I am sure they will strive for even better results in the future and these will come when patients are operated upon before deterioration has occurred, or rather before it has been masked by repeated courses of shock therapy.

LOTHAR B. KALINOWSKY, M.D. (New York, N. Y.).—Those of us who work in this field and realize the difficulties of statistical evaluation of the essentially symptomatic effect of prefrontal lobotomy, can only be highly impressed by this paper. At the Neurological Institute in New York, Dr. Scarff and I are doing prefrontal lobotomy. The dangers of the operation seem to be negligible with the open technique as used by Dr. Poppen as well as at the Neurological Institute. The results will depend entirely on the proper selection of cases, and it is in this field that we still have to learn a lot. The most convincing results are obtained in severe psychoneurotics, but here we will all be reluctant to recommend the operation as long as there is still some hope for psychological methods. In schizophrenics who represent by far the largest percentage of cases treated with prefrontal lobotomy, the main requirement will be adequate shock treatment prior to the operation. My own work in shock therapy guarantees that in our material the cases were limited to those where all possible shock treatments had failed. However, this conservative attitude does not mean that only hopelessly deteriorated cases should be operated on. Our experience shows just the opposite, namely that we should operate as soon as we can be sure that further shock treatments will be of no avail. Treatment of schizophrenics still suffers from lack of planning. Patients receive a few shock treatments here and there, have some insulin therapy—frequently without ever reaching the coma stage—and all this at long intervals. In this way valuable time is lost, and when the relatives become desperate they cry for prefrontal lobotomy. It should become a rule that as soon as the diagnosis schizophrenia has been made, a clear treatment plan should be outlined. The patient should receive a full course of electric shock therapy or insulin, or both, or these two treatments should be combined. As soon as one treatment has failed in spite of a sufficient number and intensity of treatments, the other treatment should follow. It is usually possible to recognize the failure of shock treatments in unfavorable cases in less than a year. There is no reason why prefrontal lobotomy should not be considered at such time. In this way results of the operation will be considerably better, and residual symptoms of intellectual and emotional deterioration will be much less than in patients who have been schizophrenic for 5 or 10 years.

MAGNUS C. PETERSEN, M.D. (Rochester, Minn.).—The statistics dealing with the results of prefrontal lobotomy are somewhat confusing. This is due first to a lack of uniformity in the criteria of selecting patients and secondly to variations in the surgical procedure, that is, the severity of cutting. Since our earlier cases showed considerable inertia and a tendency to a masking of the facies after the operation, we decided to cut less severely. In order to have a simple designation, Dr. Love of the Mayo Clinic graded the cutting from one to four according to the position of the section.

During the past 4½ years we have used the grade 3 operation in most cases. As a result the unpleasant after-effects, such as inertia, untidiness, confusion, and lack of conformity to accepted social behavior, have been greatly minimized.

So far only 3 of 102 patients on whom the grade 3 operation was performed have developed convulsions as compared to 14% of those who had the grade 4 operation. As a whole the clinical results have been better with the less severe cutting. Fifty percent of the state hospital patients have returned to their home communities. A number of those remaining hospitalized are improving.

Four years ago I pointed out that clinical evidence indicated that the functions of the autonomic nervous system might be altered by the procedure. Thus we noted a flattening of the blood sugar curve

after the operation. Since, we have found low blood sugar levels in 2 patients immediately after convulsions. In one the blood sugar was 33 mg. per c.c. when he was in a series of convulsions. The seizures stopped when dextrose was injected intravenously. Recently one patient developed hyperglycemia immediately after the operation. The wartime stress prevented us from making a systematic study of dextrose tolerance before and after the operation in a large number of cases.

In collaboration with the Mayo Clinic we are at the present time studying some of the autonomic functions before and after the operation. To us it seems possible that the psychic changes may be due to alterations in the functions of the autonomic nervous system. It is gratifying to know that the thinking of others is pointed in the same direction. I hope the authors will report the results of their investigations of autonomic changes following the operation.

THE SIGNIFICANCE OF ALPHA VARIANTS IN THE EEG, AND THEIR RELATIONSHIP TO AN EPILEPTIFORM SYNDROME [1]

J. E. GOODWIN, B. A. Sc.

Banting and Best Department of Medical Research
University of Toronto

INTRODUCTION

The clinical application of electroencephalography to psychiatry and neurology is beset with many difficulties. These are ascribable in part to the overlap that exists electroencephalographically between normal and clinical populations. A small proportion of patients will display electrocortical abnormalities so gross as to be practically pathognomonic of certain conditions. In a much larger percentage of cases the EEG findings, when considered in conjunction with the clinical findings, are of considerable diagnostic assistance. There is a third group, however, whose EEGs, while of questionable quality, are not sufficiently abnormal to warrant a classification other than "borderline normal."

In the epilepsies, the psychic equivalents have contributed heavily to the "borderline normal" group. Investigators are by no means agreed as to what constitutes an EEG indication of a psychic variant. The fault is not entirely the electroencephalographer's, since the clinician readily admits that he too is uncertain as to the nature and range of manifestations of this condition. As a result there has been confusion, disagreement as to clinical terms, and even at times a real doubt as to whether psychic equivalents actually exist except as bizarre manifestations of other types of epilepsy, or of hysteria.

The reports of Gibbs, Gibbs and Lennox (1, 2), describing specific abnormal electrical patterns that accompanied seizures which they termed psychomotor attacks, were genuine contributions to our knowledge. In common with most other workers, however, we were disappointed by the small number of these cases in which the EEG proved to be of diagnostic assistance. Few patients had attacks of this nature while connected to the EEG machine, and many whose histories were strongly suggestive of the condition exhibited cortical patterns indistinguishable from those of normal subjects. In a few cases well-defined square-topped cortical activity was recorded from patients whose clinical manifestations could be classified most accurately as psychoneurotic or even psychotic.

It was decided in 1940 to commence a long-term study of the so-called psychomotor variants in the EEG, to collect and classify all available information on patients or others exhibiting these slow rhythms, and to attempt a correlation between the clinical and the electroencephalographic data so obtained. The present paper constitutes a preliminary report of the findings.

TECHNIQUE

All recordings were made on 4-channel machines with Grass ink-writing oscillographs. Standard recording conditions have been maintained whenever possible. Various bipolar and "monopolar" runs were made routinely, using bilateral frontal, central, temporal, parieto-occipital, and ear lobe electrodes, and the patients were overbreathed for several minutes at the conclusion of the test. EEG changes occurring during hyperventilation were assessed conservatively and

[1] Read at the 103d annual meeting of The American Psychiatric Association, New York, N. Y., May 19-23, 1947.

This work was supported in its early stages by a grant from the Rockefeller Foundation, and is a joint project of the Banting and Best Department of Medical Research and the Department of Psychiatry, University of Toronto. The author is indebted to Dr. Chas. H. Best for the facilities that made this work possible, and to Dr. Clarence B. Farrar, Professor of Psychiatry, for his cooperation and kindly criticism. It would be impossible to list individually the many physicians to whom we are indebted for case material and follow-up data. The recordings, taken at the Toronto Psychiatric and Toronto Western Hospitals, were made by Mr. W. C. Wyand, EEG technician, whose assistance is gratefully acknowledged.

in the main did not contribute materially to the findings reported.

Findings

(1) *Alpha Variants in the EEG*

(a) *In Normal Subjects.*—During the war EEGs were taken on many thousands of young male subjects who had been examined medically and accepted by the R. C. A. F. The examinations included psychiatric studies. It can be assumed therefore that as a group these individuals represented an above-average sample of the general population, physically and psychiatrically.

It was noted that in every thousand of these recordings that were examined, 10 to 15 showed electrocortical activities indistinguishable from those associated by Gibbs and his colleagues with psychomotor epilepsy. (Fig. 1). A study of available medical documents of these men failed to disclose any significant features. Many were reinterviewed by psychiatrists or neurologists, and with one exception all denied that they were subject to attacks in any way resembling psychomotor states.

Closer examination of the EEGs of these men showed that the square-topped waves were occurring at exactly half the rate of the concurrent alpha or "10 cycle" rhythm. In a few cases the ratio was 1 to 3, and on rare occasions 1 to 4. The relationship was obscured somewhat by a tendency of the alpha waves to decrease slightly in rate in the presence of the variant, but alpha activity very close to, or preferably simultaneous with, the slow disturbance, demonstrated the quantitative relationship. In some individuals the slow rhythm was more or less continuous (Fig. 1A); in others it was definitely paroxysmal (Fig. 1B).

In many recordings the slow square-topped waves were accompanied by a charac-

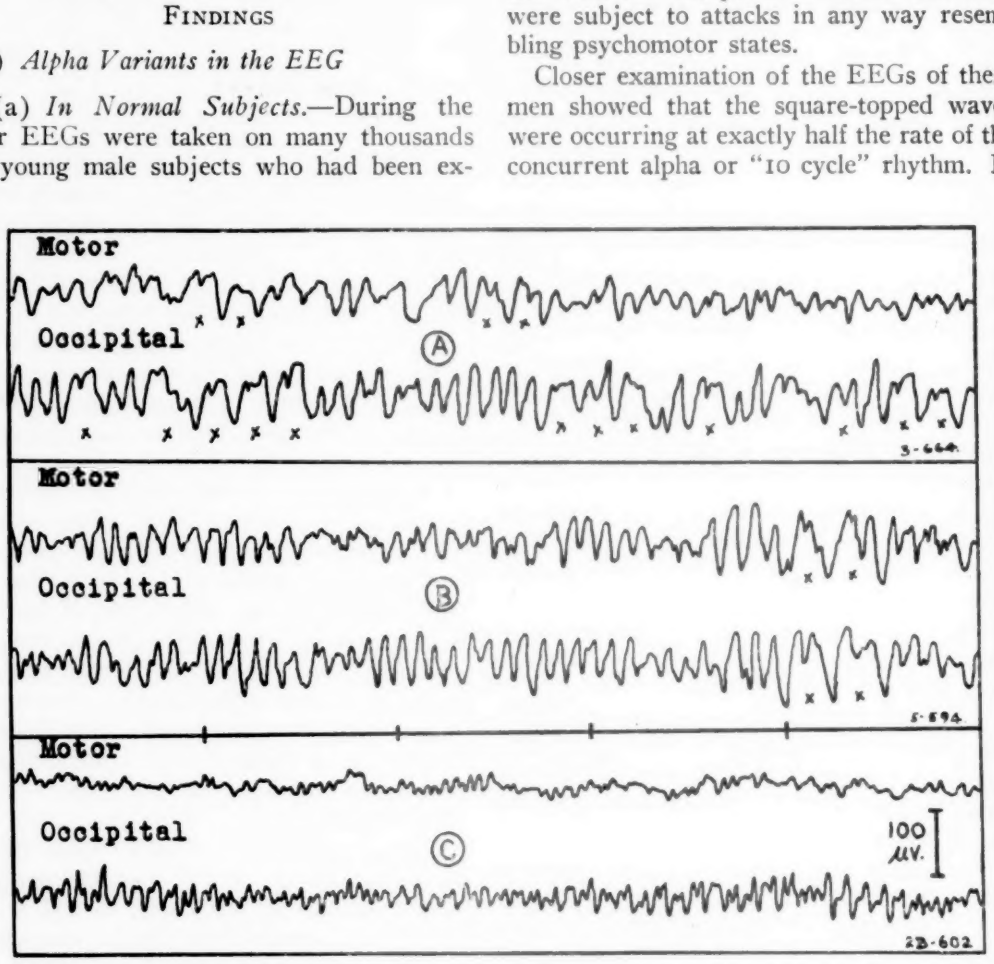

Fig. 1.—Examples of alpha variants in electroencephalograms of presumably normal subjects. "Monopolar" recording.

A. Continuous output of slow variant.
B. Paroxysmal bursts of slow variant.
C. Long trains of fast variant.

teristic fast frequency potential at approximately 20 cycles per second, or exactly twice the rate of the alpha rhythm (Fig. 1C). When a well defined burst of the latter discharge was recorded, its relationship to the alpha activity became apparent. The alpha waves were bifurcated by harmonic activity, and the absence of a "beat" or heterodyne phenomenon demonstrated the simple numerical relationship between the two frequencies. These 5 and 20 cycle per second potentials were termed "alpha variants." Typical examples of the slow and fast variants are shown in Fig. 2, enlarged

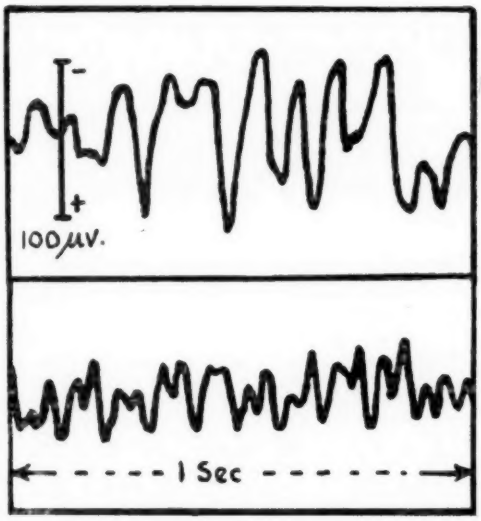

FIG. 2.—Enlarged samples of slow and fast alpha variants, showing relationships to alpha rhythm.

to twice the normal size. Both samples were recorded from occipital lobes. The relationship to the alpha rhythm is evident.

With a quantitative method of identification available, it soon became apparent that the alpha variants were of more frequent occurrence than had been realized. After some experimentation, it was found that the appearance of two consecutive square-topped slow alpha variants could be recognized reliably in an EEG. This was therefore chosen as the minimum significant amount. The presence of the fast alpha variant was much more difficult to establish, since measurement is less accurate at this higher frequency. The bifurcation of the alpha activity was finally selected as the most reliable guide.

Using these criteria, the EEGs of 550 presumably normal individuals were chosen at random from a much larger number and examined critically. The percentage of recordings containing the alpha variants is shown in Table I. In all, the recordings of 10 percent of these subjects contained traces or more of the alpha variants.

(b) *In Patients with Psychic Equivalents.*—Clinical examples of psychic variants sufficiently clear-cut to warrant a diagnosis of psychomotor epilepsy have not been common in the past. Over a period of several years, however, a number have been seen, and have been examined electroencephalographically. On those rare occasions when actual attacks have been recorded, the cortical patterns were similar to those described

TABLE I

INCIDENCE OF ALPHA VARIANTS IN VARIOUS POPULATIONS

Population	Percent showing traces or more of alpha variants			
	Slow	Fast	Slow + Fast	Total
Selected normals (550)	6	1	3	10
Psychoneurotics (94)	34	6	5	45
Epileptics (133)	51	11	11	73

Classified according to final diagnosis (prior to 1945).

by Gibbs, Gibbs and Lennox. It could be demonstrated by measurement that the slow square-topped waves recorded during the attacks, were chiefly sub-multiples of the concurrent alpha rhythm, as in the case of the normal subjects. The 20-cycle or fast variant was also present in some cases.

It is apparent that other electrocortical changes can and do occur during psychomotor attacks. Usually there is a marked increase in alpha amplitude, particularly in frontal lobes. The high voltage may be momentary (Fig. 3A), or sustained for many seconds (Fig. 3B). Sometimes there appears to be a shift in alpha rate to a lower frequency (Fig. 3C), and the square-topped waves may be sub-harmonics of the new rate. Occasionally several of these phenomena occur together, and may be further complicated by the appearance for a time of sinusoidal rather than square-topped waves (Fig. 3D). In the main, however, the subharmonic and harmonic relationship to the dominant rhythm is maintained.

EEG recordings taken on these patients between attacks almost invariably show traces of the slow and fast alpha variants. A very apprehensive individual may fail to manifest the activity on the initial recording, but a second attempt will usually be successful. The amount of one or both alpha variants may vary widely, and does not appear to be closely related to the frequency of the

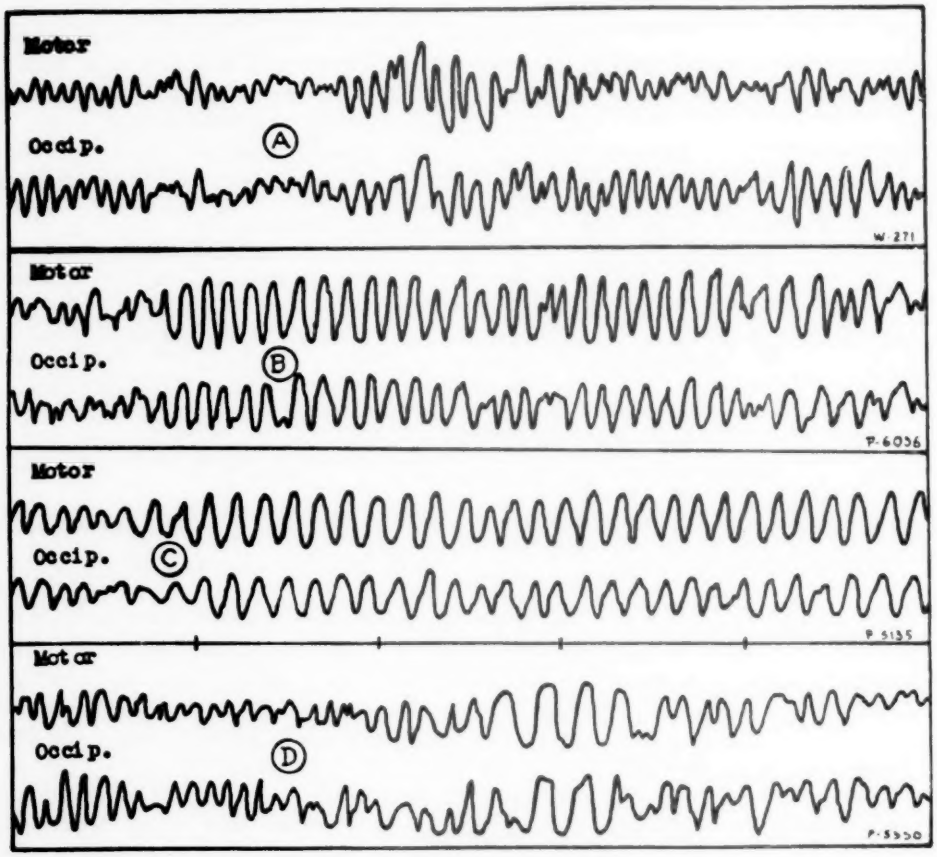

FIG. 3.—Elements of psychomotor activity in EEG, illustrating changes that may occur, separately or in combination. (For details see text.)

patient's spells. Examples of between-attack EEGs are shown in Fig. 4 (A and B).

(c) *In Patients with Major Attacks.*—The EEGs of 133 patients with histories of grand mal attacks were examined. It was found that 73 percent of the recordings contained recognizable traces (or more) of the alpha variants. (Table I.)

A careful survey of the history summaries of these cases suggests that they may not be wholly representative of epileptics as a class. In approximately one-half of the cases diagnosis was difficult on the basis of available information. Insofar as the more obvious types of idiopathic epilepsy may not have been adequately represented in the series, it is possible that the value of 73 percent mentioned is not a true indication of the incidence of the alpha variants in major epilepsy. Nevertheless, it is apparent that the alpha variants can occur frequently in recordings from patients known to have grand mal attacks.

(d) *In Patients Diagnosed as Psychoneurotics.*—A similar survey was made of the EEGs of 94 patients who prior to 1945 had been diagnosed as suffering from various types of psychoneurosis. Forty-five percent of the recordings contained alpha variants to a greater or lesser degree. Breakdown by type of variant is shown in Table I.

As in the case of the epileptics, the possibility of preselection within this group cannot be ruled out. It was obvious that many cases presented problems in diagnosis, and frequently the EEG was requested to assess the possibility of some contributory etiology.

(2) *Correlations between EEG and Symptomatology*

Before referral for an EEG, each patient received at least preliminary examination in a general or psychiatric hospital, or in the office of a consultant. The history, and neurological and psychiatric findings, usually supplemented by subsequent observations and final diagnosis, were assembled for correlation purposes. Pertinent electroencephalographic and clinical data were coded on punch cards, permitting rapid classification of the various findings.

(a) *Early Findings in Psychoneurosis.*—It was noted that most of the patients with alpha variants in the EEG were complaining of "spells" of various kinds, whereas those whose recordings did not show the variants suffered chiefly from complaints of a more sustained nature. This difference was so marked that it was investigated with some care. Finally a classification of the episodic complaints was evolved, and is shown in Table II. The incidence of the various symptoms in (a) 43 cases with alpha variants in the EEG, and (b) 51 cases in which the variants could not be found, is given. It is seen that the episodic type of disorder is much more frequent in patients whose EEGs contained one or both alpha variants.

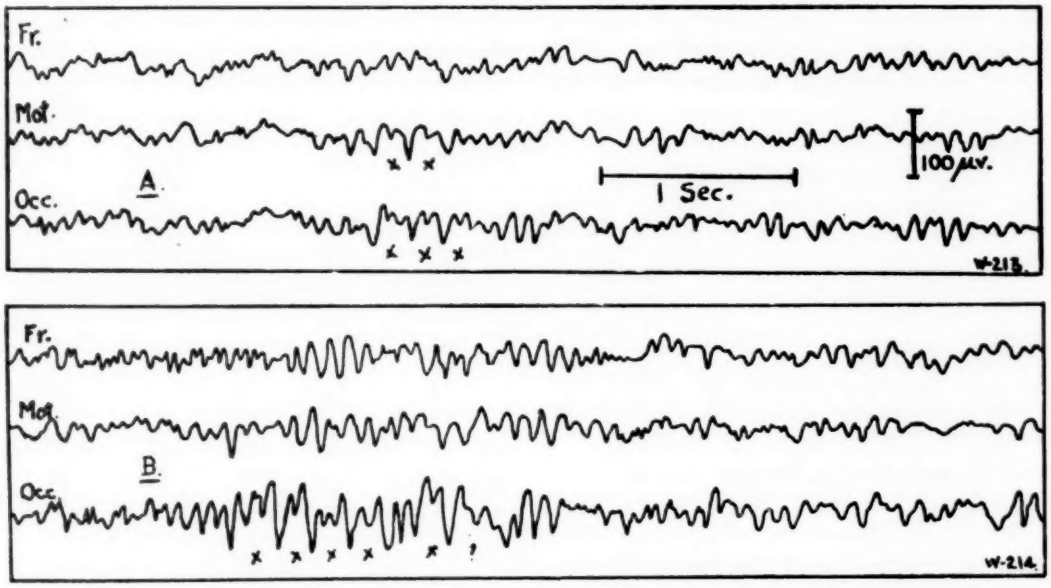

FIG. 4.—Alpha variants recorded between attacks of psychic variant type. Simultaneous temporal area recordings omitted, as they showed no abnormality.

A. History of "faints" for many years. One severe attack observed in psychiatrist's office.
B. History of headaches, "shaking spells" and episodes during which he seems unconscious of his surroundings, and says things which he later does not remember.

The symptomatology is discussed elsewhere by Proctor(3). It should be noted, however, that the complaints are not necessarily those described by the patient, but are based primarily on an interpretation of the symptoms by the consultant. Thus a history of bouts of weeping, followed by feelings of unreality, would be classified as emotional instability plus impaired consciousness. A short episode in which the patient is oblivious of his environment would be an example of loss of consciousness.

While a few patients suffered from only one of the complaints listed, a majority had

two or more. In all, 90 percent of those with alpha variants had symptoms as classified, whereas less than 25 percent of the variant-free patients could be fitted into this symptomatology.

(b) *Epilepsy (Early Findings).*—In Table II is listed the incidence of the same complaints among the epileptic series. While the percentages were quite different from those found among the psychoneurotic group, a similar correlation between the symptomatology and the alpha variants could be demonstrated.

(c) *New Series.*—Because of the incomplete nature of the clinical data on many of the earlier cases, it was decided to compile a new series in which the symptomatology could be compiled more thoroughly. A few patients of the earlier series were included, if they were still available for further study or if their histories were unusually complete, but by far the greater number were new patients referred for EEG examination. The series was closed when 200 suitable cases had been obtained.

In selecting suitable clinical material for the series, the only type of major epilepsy excluded was Jacksonian (except for 4 cases that were retained because of certain unusual features of the attacks). The series consisted of individuals with alpha variants in the EEG—but with no significant electrical signs of focal abnormality in cerebral cortex—whose neurological examinations were essentially negative, and have (with 2 exceptions) remained so. All were clinically abnormal cases.

Breakdown of the symptomatology is shown in Table III. It will be seen that the incidence of cranialgia is much higher than in the earlier group. Emotional and vasomotor instability and impaired consciousness are somewhat less, because of the inclusion of known epileptics in the series. Loss of consciousness occurs somewhat more frequently than before.

Approximately two-thirds of these patients have not had attacks of major epilepsy, as far as could be determined. The remaining third have experienced one or more grand mal seizures.

Fifty-seven patients (28½%) complained of only one symptom in the list, the remainder having two or more symptoms. Except for petit mal, which occurred chiefly in conjunction with grand mal, almost every possible pair of symptoms was represented. The combinations occurring most frequently were (a) cranialgia and periods of impaired consciousness (29 times), and (b) grand

TABLE II

INCIDENCE OF VARIOUS COMPLAINTS IN PSYCHONEUROTIC AND EPILEPTIC POPULATIONS

Complaint	94 cases of psychoneurosis: With alpha variants (43 cases), percent	94 cases of psychoneurosis: Variant-free (51 cases), percent	133 cases of epilepsy: With alpha variants (97 cases), percent	133 cases of epilepsy: Variant-free (36 cases), percent
Cranialgia	16	2	5	0
Emotional instability	40	4	20	8
Vasomotor instability	12	4	3	0
Impaired consciousness	56	14	30 *	11 *
Loss of consciousness	21	7	35 *	20 *
Total with one or more of above	90	23	67	28

* Known petit mal cases (as disclosed by EEG) excluded.

TABLE III

INCIDENCE OF VARIOUS COMPLAINTS IN 200 PATIENTS WITH ALPHA VARIANTS IN EEG. (NEW SERIES)

Complaint	Percent of 200 cases
Cranialgia	31
Emotional instability	23
Other personality disorders	8
Vasomotor instability	9
Impaired consciousness	39
Loss of consciousness	40.5
History of one or more epileptic attacks:	
Idiopathic G.M.	32.5
Petit mal (in EEG)	2.5
Jacksonian—(including hysteroid Jacksonian)	2

mal attacks and loss of consciousness (28 times). The latter finding is of interest, since in only 5 patients was spike and wave activity recorded in the EEG, either spontaneously or as a result of five or more minutes of hyperventilation.

The 200 patients were approximately equally distributed as to sex, 47½ percent being males and 52½ percent females. No significant difference in the type or frequency of the complaints could be demonstrated between sexes. The mean age of the males was 32.8 years; that of the females, 30.8 years. While this difference was not statistically valid (P=.15) it was noted that the distribution curves of age were not the same for males and females. There was a disproportionately large group of females in the 15 to 20 year range, as compared with the males.

Of the 200 cases examined electroencephalographically, 130 remained available for treatment and further study. The results of various medications are described in the paper by Proctor(3).

Discussion

Square-Topped Waves and Alpha Activity.—The quantitative relationship established between the slow square-topped waves of psychomotor epilepsy and the alpha rhythm aids materially in identifying the slow dysrhythmia. One can recognize the variant even when it is present in amounts that would normally not be considered significant. Similarly the fast variant, when identified by objective criteria, becomes a significant entity, to be differentiated from other fast discharges of the cerebral cortex.

Other investigators have observed the harmonic and sub-harmonic alpha variants. Hallowell Davis, in 1942, stated that he had seen similar "half and double alpha" activity in tracings from individuals who appeared to be free of psychomotor symptoms (personal communication). More recently, Finley(4) has described fast frequency that is "dichrotic" or " bicuspid" when superimposed on the 10 per second cycles. Cohn(5) has reported an 18 to 22 cycle frequency in patients with hyperemotional states, with which were associated, among other complaints, headaches, dizziness and intervals of unconsciousness. It will be recalled that Adrian and Matthews in 1934(6) produced the fast alpha variant experimentally in test subjects by means of photic stimulation presented at twice the normal alpha rate.

Many examples of the slow alpha variant are seen in the literature. When it is displayed prominently as in the published works of Gibbs and his associates, it is identified as a psychomotor variant. Frequently it occurs in much less pronounced form, and may go unrecognized. Traces of the activity can be discerned in many of the illustrations in the literature, especially those papers dealing with the EEG in epilepsy and in behavior disorders of various kinds.

Gibbs, Wegner and Gibbs(7) have estimated that 0.5 percent of presumably normal individuals manifest the psychomotor variant in their electrocortical patterns. Our own investigations would indicate that this figure is too low. Even by rather gross criteria it can be found in 1 to 2 percent of normal subjects. If the factorial relationship to the alpha rhythm is used as the criterion, and if the fast variant is included, an incidence of 10 percent can be demonstrated.

It is interesting to speculate on the etiology of the alpha variants. Davis, in a personal communication, has suggested that the slow variant may be the result of missed or "dropped" alpha beats, and that the fast variant may occur when adjacent areas of cerebral cortex discharge alternately instead of in unison. The missed beat theory presents certain difficulties which will not be elaborated upon at this time, but the concept of an antiphonal alpha discharge resulting in a harmonic activity is an attractive one. Bipolar recordings taken over occipital lobes will occasionally show apparent harmonic activity between two areas that are each generating normal alpha rhythms. The difference appears to be one of phase relationships.

Range of Epilepsy.—The question of what constitutes a psychic equivalent, and its possible relationship to epilepsy as a whole, have been matters of conjecture for many years. Gowers(8), for example, held that these states were in the borderland of epilepsy—near it, but not of it. Kinnear Wilson(9) on the other hand preferred to regard the epileptic equivalents as belonging to true

epilepsy. With the findings of Gibbs, Gibbs and Lennox(2) on so-called psychomotor epilepsy, and those of Jasper, Solomon and Bradley(10) on behavior problems in children, there has been a growing tendency to associate episodic disorders of behavior to a cerebral dysrhythmia, and this in turn to an epileptiform etiology. The observations of Pacella, Polatin and Nagler(11) serve to illustrate this trend. These investigators noted a high incidence of slow waves, chiefly after a two-minute period of overbreathing, in a group of patients manifesting obsessive-compulsive states. The authors discussed the possibility that there might be a form of psychologic fit or "spasm" related to the psychomotor variants of epilepsy, and associated with obsessive-compulsive activity.

In England the literature reflects the same trend of thought. Hill(12) investigating cerebral dysrhythmia in cases with aggressive behavior, concluded that there was a kinship between what he described as the "dysrhythmic aggressive behavior" patient and the epileptic. Denis Williams(13) agreed with the probability of a common basic disorder in such cases and in epilepsy, but warned against the indiscriminate use of the term "epileptic" if it is to retain any reasonable meaning in clinical medicine.

In a recent short paper by Walter, Dovey and Shipton(14) the authors described certain experiments that suggest that they are aware of a relationship between harmonic and sub-harmonic activity in the EEG, and epileptiform attacks.

The findings of our own studies indicate that the psychic variants extend even further than was contemplated by Gibbs and his colleagues when they suggested the term "psychomotor epilepsy," since it is apparent that patients in this group need not display motor manifestations during their attacks. It therefore becomes increasingly necessary to devise an adequate terminology to describe these complaints, and to re-assess their relationship to clinical epilepsy.

Alpha Variants and Their Relationship to Attacks.—Since a valid statistical relationship can be established between the alpha variants in the EEG and an epileptiform syndrome, it becomes expedient to examine the relationship more closely. The cerebral patterns recorded by Gibbs, Gibbs and Lennox during certain atypical attacks, as well as our own examples of psychic seizures, have convinced us that the vestigial alpha variants seen in the recordings of these patients between attacks represent the same activity in larval form. Penfield(15) has suggested that psychical seizures may be of two types. In one variety the attack may be the result of an abnormal discharge within the cerebral cortex, which by stimulating certain areas causes altered states of consciousness, hallucinations or bouts of bizarre conduct. Penfield has produced dream states by direct stimulation of the temporal lobe at operation. It is interesting to note, however, that the patient recognizes the sensation as a dream, whereas in a spontaneous attack of a similar type he is unaware at the time that it is an illusory experience. One may conclude that local stimulation of temporal lobe is not sufficient to produce a typical psychical attack, since it leaves the patient's critical faculties unimpaired.

It seems reasonable to assume that the extent to which the alpha variant spreads throughout the brain may determine the exact type of psychic attack. Thus a continuous output of flat-topped waves from frontal lobes alone, which we have recorded from a patient whose chief clinical manifestations were confusion and a degree of disorientation at the time of EEG recording, becomes understandable. In a recent case a bout of uncontrollable rage was preceded by a slightly slowed but abnormally high voltage alpha rhythm, coupled with square-topped waves, in the occipital regions only. This patient reported that prior to losing consciousness he had experienced a series of compelling visual hallucinations. We have recorded a small number of attacks in which, in addition to typical psychic manifestations, there were rhythmic twitchings of the limbs or face coinciding in frequency with the alpha rate or with that of the slow alpha variant. Some of these attacks were of more than one minute duration, and as was demonstrated by the movement artefacts in the EEG, the motor manifestations remained synchronized with the alpha or the variant. This suggests that the motor area too may become involved at times in the disturbance.

It may therefore be possible to regard the extremely varied clinical manifestations of the psychic equivalents as being dependent upon the areas of brain, cortical and subcortical, that are involved in the alpha variant discharge, exactly as occurs in grand mal. Possibly in cases where the attacks follow each time a definite pattern, an important factor may be hyperirritability of certain brain areas.

Penfield and his colleagues, if our understanding of their views is correct, attribute attacks of this type to spike discharges within the brain. Jasper(16) has stated that the electropositive sharp portion of the square-topped wave may actually be an electronegative spike potential emanating in temporal lobes, appearing in monopolar recordings as a discharge picked up by the ear electrode, and consequently reversed in phase. This possibility has been examined. It was found that occasionally the alpha variants, and particularly the slow variants, were prominent in temporal lobes. In most cases however they ranged widely throughout other areas of cortex, leaving temporal lobes largely unaffected. This was apparent in 'bipolar' as well as 'monopolar' recordings. Most of the patients showed no EEG evidence of temporal lobe localization of the type discussed by Jasper, or of sub-cortical abnormality as described by Lennox and Brody(17). It was concluded, therefore, that in general the alpha variants could be regarded as indicative of more diffuse brain dysfunction.

Another point of difference between psychomotor variants and spike discharges was indicated by Gibbs and his colleagues many years ago(2). Phenobarbiturates are contraindicated in psychomotor epilepsy, whereas they can be used in the control of disorders related to spike potentials. This selective response to medication has been confirmed by Proctor(3).

Penfield's second type of psychical seizure is one in which there is release of the higher centres by an epileptic discharge or by a post-ictal paralysis of these centres, and a taking over at an automatic or "robot" level by the lower centres. The familiar post-epileptic automatism is a well known example of this variety of behavior disorder.

In order to explain a psychical seizure on the basis of a post-ictal state, the patient must have experienced an abnormal cortical discharge immediately prior to the attack. The writer's failure to obtain significant pre-seizure discharges in any of the 200 cases under review, indicates that post-ictal states did not contribute materially to the clinical or electroencephalographic picture in this group. Furthermore, very few of the manifestations could be truly described as automatisms. It is questionable therefore whether a prior abnormal cortical discharge, resulting in a release of lower centres, played a prominent part in the symptomatology of our series of cases.

It would appear from our findings that in all probability a psychic variant is a direct response to a specific type of cerebral discharge as Gibbs, Gibbs and Lennox have postulated. The discharge is a complex one, involving either a dysfunction or an abnormality of the dominant cortical rhythm, in which the alphas may change slightly in fundamental rate, increase markedly in amplitude, and even re-distribute themselves in a new manner over the cerebral cortex. In addition, it may (and usually does) alter to a slow, unsymmetrical sub-harmonic of the alpha rate, or to a rapid symmetrical harmonic at twice the alpha frequency. One or all of these changes may occur. There may even be sinusoidal slow wave activity at some phase of the attack.

Specificity of the Alpha Variants.—It is obvious from the findings presented here that the alpha variants are not pathognomonic of psychic seizures, since ten percent of a selected normal population showed traces of these variants in the EEG. Even when the variants are present in what appear to be abnormal amounts, it is not more than presumptive evidence that there are accompanying clinical states. The objection of Jasper and Kershman(18) that the "psychomotor variants" are not of marked diagnostic assistance, since they may be present in the EEGs of patients whose clinical attacks are obviously of other types, is undoubtedly a valid one. The alpha variants can occur in patients whose only known seizures are grand mal in type. Nevertheless from the standpoint of controlling the attacks, whatever their exact nature may be, the presence of

alpha variants, or in their more obvious forms the "psychomotor variants," is of more than academic interest. As the accompanying paper by Proctor endeavours to show, the variants, when evaluated in conjunction with a specific symptom complex, can be utilized in the diagnosis and treatment of certain conditions. This seems to be true whether or not grand mal epilepsy is present. As nearly as we can evaluate our findings at this stage, the variants link certain apparent neurotic traits to the epileptiform syndrome, and therefore become of clinical interest.

The presence of alpha variants in a proportion of a normal population remains unexplained. Possibly it represents a pool from which, under "stress and strain," are recruited the cases that later appear with clinical abnormalities. We do not yet know.

Summary and Conclusions

1. Evidence has been presented to show that the cerebral psychomotor patterns of Gibbs, Gibbs and Lennox are related to certain variations of the 10-cycle or alpha rhythm of the brain, which have been termed alpha variants. The most common variants consist of a halving or doubling of the alpha rate.

2. Even in cases of known psychomotor epilepsy the amount of the alpha variants recorded in the EEG between attacks may vary widely both among and within individuals, but practically all such patients show traces of the variants between seizures.

3. There is a high incidence of alpha variants in certain other conditions, notably psychoneurosis and idiopathic epilepsy. Their presence in the so-called psychoneurotic group shows a high correlation with a symptom complex that includes cranialgia, episodic changes in levels of consciousness, and emotional and vasomotor disturbances.

4. A high incidence of alpha variants among patients with grand mal epilepsy has been noted. The alpha variants may be correlated in these cases with altered states of consciousness (which cannot be identified electroencephalographically with petit mal), or with neurotic traits superimposed on the major epilepsy. It is concluded that mixed epilepsy of a grand mal—psychic variant type is of frequent occurrence.

5. The alpha variants are not pathognomonic of the epileptiform states. The significance of their appearance in the EEG without the accompanying symptom complex, as in the case of a small proportion of presumably normal individuals, has not yet been elucidated.

6. The alpha variants are of diagnostic assistance in cases where the neurological findings are essentially negative, and where the EEG is otherwise within broad normal limits. Under these circumstances, their presence in the EEGs of patients with vasomotor instability (cranialgia, dizziness, etc.), emotional disturbances of an episodic nature, or changes in the state of consciousness, indicate that the condition may be related to an epileptiform syndrome, rather than to a purely psychosomatic etiology.

7. The term psychomotor epilepsy is inadequate to describe the entire range of psychic variants in the epileptiform syndrome, and in our opinion should either be replaced by a more descriptive term, or its use restricted to conditions in which motor manifestations of a bizarre nature are present.

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THE EFFECT OF VARIOUS MEDICATIONS ON PATIENTS MANIFESTING AN EPILEPTIFORM SYNDROME [1]

LORNE D. PROCTOR, M.D., TORONTO, ONT.

A variety of clinical abnormalities has been associated with the psychomotor variant (slow wave variant in the electroencephalogram) of Gibbs *et al.*(1). These epileptiform episodes, in which automatic or compulsive behaviour and/or altered states of consciousness are the more common manifestations, have been termed by Gibbs "psychomotor attacks." They resemble closely Lennox and Cobb's(2) psychic variant or equivalent and here again the slow wave variant is the outstanding EEG abnormality. Penfield's automatisms and psychical seizures are clinically similar.

We endeavour in this paper to describe a syndrome which incorporates the clinical findings in the above episodes as well as additional clinical features, all associated with the "psychomotor variant" in the EEG. The effect of various medications on patients showing this composite syndrome will be reported.

In 1942 we commenced observing the EEG findings of apparent psychoneurotic patients complaining of periods of altered states of consciousness, *e.g.*, trance-like states, feelings of unreality and finally so-called fainting spells. The EEG findings on this group showed an occasional half- and/or double alpha variant as described by Goodwin(3). Because of this finding, anti-convulsive medication was considered and in view of the work of Merritt and Putnam (4, 5) with sodium diphenyl hydantoinate (dilantin sodium) this drug was employed in our cases. Dilantin sodium has been found to be most efficacious in the treatment of psychomotor and grand mal epilepsy and of little value in the treatment of petit mal attacks. On placing these patients on dilantin sodium, the psychoneurotic features were definitely reduced. At this point, our interest was stimulated to go farther afield. Patients showing emotional instability, headaches and vasomotor upsets, particularly migraine, were subjected to EEG examination. In this group also, alpha variants were found in the recordings. One hundred and thirty cases, showing psychoneurotic and other clinical features described above and exhibiting in the EEG traces or more of a variant of the alpha activity, were collected up to February 1947. This series was made up of patients from the indoor medical and out-patient neurological services of the Toronto Western Hospital, the indoor and out-patient departments of the Toronto Psychiatric Hospital, as well as private neurological patients referred to the electroencephalographic department of either of the above hospitals. All patients in this series, on neurological examination, were essentially negative. The period of observation extended from approximately four months to four years. The patients ranged in age from 3 to 81 years—55% were females and 45% males.

A card was compiled, setting out in detail the symptomatology of the group (Fig. 1). In categorizing the complaints of the patient it will be seen that various headings, and the descriptive terms, are not necessarily an actual verbatim report. Indeed the patient's description may cloud the etiology, *e.g.*, he may complain of staggering but cannot inform the examiner whether it is a dysfunction of the vestibular apparatus or an episode of impaired consciousness. Therefore a careful inquiry was made into all complaints before categorizing them. The heading *'cranialgia'* is self-explanatory except

[1] Read at the 103d annual meeting of The American Psychiatric Association, New York, N. Y., May 19-23, 1947.

From the department of psychiatry, University of Toronto and the department of medicine, Toronto Western Hospital. A portion of this work was made possible by a grant from the Rockefeller Foundation. This research has been supervised by Professor Clarence B. Farrar, and Dr. Herbert K. Detweiler, physician-in chief of the Toronto Western Hospital.

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Form 387

TORONTO WESTERN HOSPITAL

Name ..... M. F. Age.....

E.E.G. No..... Ward..... Date.....

Cranialgia: Severe. Mild. Diffuse. Localized..... Pressure. Pain. **Frequency**.....

Emotional Instability: Irritability. Rages. Fears. Panic States. **Frequency**.....

Vasomotor Instability: Sweating. Tremors. Dizziness. Weakness. **Frequency**.....

Impaired Consciousness: Auditory. Visual. Feelings of Unreality.

Trance States. Fugues. Compulsive Behaviour. **Frequency**.....

Loss of Consciousness (describe) .....

Twitching. **Frequency**.....

Other Personality Disorders (describe)

Episodic. Continuous. **Frequency**.....

Epilepsy: Standard Types.

Idiopathic. Grand Mal. Petit Mal. Jacksonian. **Frequency**.....

Other Clinical Manifestations:.....

.....

.....

Diagnosis

E.E.G. Findings

Medication and Progress

FIG. 1

probably for the term 'pressure' which is to cover the frequent complaint of pressure from within or without the cranium. *'Emotional and vasomotor instability'* needs no explanation. Under *'impaired consciousness'* we have grouped auditory and visual hallucinations or illusions. The patient may complain of queer feelings, at times stating that things appear unreal. In the 'trance-like states' it is not uncommon for the patient to explain that he can hear what goes on but cannot speak or move and occasionally he is unable to hear but merely observes his environment without being able to contribute actively to it. 'Compulsive behaviour' can best be described by this example: a patient who had sufficient insight to appreciate that she was not mentally well, telephoned her mother previous to doing some Christmas shopping. Her mother made light of her apprehension and the patient followed her mother's advice to complete her shopping. Visiting a store for this purpose, she felt compelled to steal trifling articles, fully aware that she was being followed by the store detective, but being unable to alter her behaviour. The term *'loss of consciousness'* covers any duration of unconsciousness and the patient often describes it as fainting spells. It is useful to note the duration of such periods and to ascertain if the patient is immobile during this period of unconsciousness. In *'other personality disorders'* which are episodic we have seen episodes of anxiety, psychomotor inertia, as well as frank psychotic periods. The heading *'epilepsy'* was added when we found that a portion of the cases in our series suffered from this abnormality. Finally, the term *'other clinical manifestations'* was reserved for any clinical features that could not be categorized under the above headings.

As the series increased, the association between typical epilepsy and the syndrome under investigation became increasingly obvious. This is shown in the 130 cases to be described. Although chosen primarily because of the presence of one or more of the tabulated complaints, it was found that approximately ⅓ of the series suffered from typical epilepsy. Because of this relationship, we have termed the syndrome an epileptiform syndrome.

The results on placing the 130 patients on various medications is set out in Table I.

TABLE I

RESULTS OF MEDICATION

(186 treatment observations on 130 patients, including those showing grand mal or petit mal features)

Medication	Markedly improved	Improved	% Markedly improved or improved	Unimproved	Total
Dilantin sodium	38 (70%)	11 (20%)	90%	6 (10%)	55
Dilantin sodium plus phenobarbital...	47 (72%)	16 (25%)	97%	2 (3%)	65
Phenobarbital	1 (3%)	10 (29%)	32%	24 (68%)	35
Dilantin sodium plus sodium amytal..	3 (33%)	6 (67%)	100%	0 (0%)	9
Sodium amytal	0 (0%)	8 (36%)	36%	14 (64%)	22
				Total	186

Markedly improved indicates that there is at most only an occasional disabling episode and this never producing unconsciousness. Improved indicates that the episodes are reduced in number but not necessarily in degree. The table shows the responses of 130 patients, but as numerous patients were moved from one therapeutic routine to another, 186 observations appear. The outstanding feature is that the groups receiving dilantin sodium alone or in combination, showed the greatest improvement. Using dilantin sodium alone, 49 of 55 cases, or 90%, were markedly improved or improved. While this figure rose to 97% on adding phenobarbital, this increase is not statistically significant. Those placed on phenobarbital or sodium amytal alone, in the majority of cases, were unimproved; in fact only 1 case out of 35, or 3%, was markedly improved on phenobarbital. This confirms Gibbs *et al.*(6)

who have reported the production of psychomotor attacks by the use of this drug. There was no marked improvement in 22 cases placed on sodium amytal alone. In the case of dilantin sodium medication alone, there were 6 failures (10%). One case was intolerant to dilantin sodium, not allowing adequate dosage (the drug was discontinued after 3 weeks on 2 grs. dosage daily). The second case was subsequently found at operation to have cortical gliosis in the frontoparietal area. The third case became markedly improved on adding to the dilantin sodium, sodium amytal grs. 1 t.i.d. to allay a marked anxiety feature present. Trial of this patient on sodium amytal alone resulted in an obvious relapse with a complete recovery on addition of dilantin sodium grs. ½ q.i.d. The fourth failure was a patient who subsequently complained of a sensory epileptiform attack involving the left upper limb as well as severe bouts of vomiting. Her gastric test meal between attacks showed an extreme fasting gastric hyperacidity. The fifth case was a psychopath and his history of "dizzy spells" could not be confirmed—no one ever saw him during one of the alleged attacks. The final case did not, at any time, complain of genuine impaired consciousness or any other feature of the syndrome, but was included due to the complaint of "fuzziness" which subsequently could not be adequately assessed.

In Table II the response on various medications of 85 patients of the previous Table I showing no evidence of grand mal or petit mal components, is recorded. The only significant difference in the results in Tables I and II is the decrease in benefit using phenobarbital alone. In those cases of the epileptiform syndrome showing no grand mal or petit mal components, not one case was markedly improved on phenobarbital. Those showing improvement of any degree on phenobarbital had fallen from 32% in Table I (grand mal and petit mal components present) to 19% in Table II (no grand mal or petit mal components present). The anti-convulsant properties of phenobarbital probably account for this variation. Sodium amytal, a non anti-convulsant drug, used alone did not bring about marked improvement in a single case. Its effect was identical in both groups, namely 36% of cases were improved.

In Table III the results of withdrawing dilantin sodium or substituting an identical placebo capsule are shown. Eighty percent of the cases on placebo relapsed within 10 days and recovered within one week on resuming dilantin sodium. One hundred percent of the cases that for one reason or another stopped dilantin sodium, relapsed within two weeks and recovered on resuming this drug within one week. The majority of patients showed a progressive improvement

TABLE II

RESULTS OF MEDICATION

(121 treatment observations on 85 patients, without grand mal or petit mal features)

Medication	Markedly improved	Improved	% Markedly improved or improved	Unimproved	Total
Dilantin sodium	33 (68%)	10 (21%)	89%	5 (11%)	48
Dilantin sodium plus phenobarbital	17 (65%)	7 (27%)	92%	2 (8%)	26
Phenobarbital	0 (0%)	3 (19%)	19%	13 (81%)	16
Dilantin sodium plus sodium amytal	3 (33%)	6 (67%)	100%	0 (0%)	9
Sodium amytal	0 (0%)	8 (36%)	36%	14 (64%)	22
				Total	121

TABLE III

EFFECT OF DISCONTINUING SODIUM DIPHENYL HYDANTOINATE (DILANTIN SODIUM)

Method of discontinuance	No. of Cases	No. of clinical relapses	Percentage	Effect of resuming dilantin sodium
Substituted placebos.	10	8	80	Recovery 100%
Stopped drug for one or other reason, without substitution by other medication	10	10	100	Recovery 100%

as the dilantin dosage was increased and the phenobarbital or sodium amytal medication decreased. A number of the patients categorized as improved are still under observation for the purpose of determining the most appropriate dosage of dilantin sodium. Some of these may be transferred to the markedly improved group in the near future.

The average effective dilantin sodium dosage for the various complaints, exclusive of grand mal epilepsy, appeared to be approximately 3 grains per day. The daily dose varied from approximately 1½ to 9 grains. The average effective dilantin-phenobarbital dosage for the cases showing grand mal components was found to be 3.0 grains of dilantin sodium with 1.5 grains of phenobarbital, a ratio of 2 to 1. The dilantin sodium dose varied from 2 to 6 grains daily and the phenobarbital dose from ½ to 4½ grains daily.

The following are example cases from our series showing the epileptiform syndrome.

The first was a middle aged woman who had been seen by a number of physicians and very thoroughly investigated in one of our general hospitals, for a bizarre complaint consisting of olfactory hallucinations. She insisted that there was a smell of decaying vegetables or other nauseating odours to the point of producing vomiting. Neurological examination was completely negative, in fact the physical examination showed no significant abnormality. An air encephalogram was negative and spinal fluid examination was also negative. It was felt by one of the physicians who examined her that she was suffering from hysteria. At the time the patient came under our care, she was acutely dehydrated and suffered occasional periods of unconsciousness which she termed "fainting spells." Because of this complaint an EEG was done and showed an obvious psychomotor variant. The patient was placed on adequate dilantin sodium medication and made a complete recovery over a period of approximately three weeks. She was referred to the out-patient department of the Toronto Western Hospital and it is interesting to note that she discontinued her medication, explaining that she did not think it was necessary to carry out the routine as it was "a new-fangled idea of a young doctor." Within a week she had relapsed so that her uncinoid fits recurred and she very meekly reported to the out-patient department. She has continued her medication religiously without return of the uncinoid features but manifesting a mild psychoneurosis not uncommonly seen in obviously insecure spinsters. We fully appreciate that a temporal lobe lesion has not been completely ruled out in this patient and she is being closely followed in our out-patient neurological department.

The next patient was a young woman who had suffered from migraine from the age of seven, a period of seventeen years. There were the usual prodromal signs and the headache, once established, seldom disappeared in less than 24 hours. It was so disabling, invariably producing vomiting, that it required spending at least two, or often three or four days a week in bed. It was a continual fight between attacks to re-establish adequately the fluid balance of the body. In this case the history of feeling faint at times suggested an EEG investigation. To our surprise an alpha variant was present. We had come along far enough in the observations on this series to appreciate the need of observing the cases showing this EEG abnormality on other than dilantin therapy from the beginning. The patient was brought to hospital at the start of one of her migraine attacks and placed on sodium amytal, grains 3 t.i.d., p.c. and h.s. without any significant improvement, this attack terminating spontaneously in two or three days. The patient was continued on sodium amytal but the headaches recurred as usual. Dilantin therapy was substituted for sodium amytal and over a period of three weeks the patient experienced what to her was a remarkable improvement, and at the end of six weeks her migraine attacks had disappeared, being replaced by an occasional trance-like state which existed for a "few minutes." Her dilantin dosage was increased and for the past six months she has had no disabling cranialgia and there has not been a single bout of vomiting.

The next and final case was that of a young man who had been very active in radar work in the army and on returning to civilian activity complained of being anxious and fatigued, a complaint that suggests on the surface a psychoneurotic syndrome. On further interrogation, the patient made the interesting statement that at times he felt "queer," being unable to appreciate fully conversation that was going on about him and not being able to carry out a simple planned routine. This state would last for ten minutes or so and afterwards he would feel quite fatigued. It was because of this last feature of the history that an EEG was done and again an obvious psychomotor variant was seen. As in the previous case, we were very anxious to see his response to sodium amytal because of the anxiety features, and there was only a slight improvement brought about by this medication. To avoid as much as possible the suggestion factor, the patient was told that he was to be changed from his medication (sodium amytal) to another medication that probably would not be as beneficial but in the interests of medical science we pleaded that he would agree to this plan. This he did and to his surprise found that the trance-like states disappeared and his anxiety and fatigue markedly improved. He has remained in such an improved state for the past seven months.

Discussion

On reviewing our series, it becomes obvious that our epileptiform syndrome can extend from cranialgia, sweating, tremors, diz-

ziness, or weakness, episodic emotional upsets, slight changes in consciousness, to the more acute stages of impaired consciousness in which we have hallucinations, feelings of unreality, trance-like states, fugues and finally automatic or compulsive behaviour or complete loss of consciousness. In several of our cases, showing the above syndrome, we have observed poorly localized twitchings and can conceive of this abnormality progressing to the point of a typical grand mal convulsion. Such a progression is seen frequently during insulin shock therapy and begins with purposeless twitchings. In a similar manner, episodic emotional instability can progress to the point of a psychotic disorder and a state simulating a true manic reaction appear. In this panorama it is quite impossible to define clinically where any one type of epilepsy begins and ends or when it is combined with the other epilepsies. In our opinion, we must change our conception of epilepsy from the cut and dried differentiation of the three major types and consider the real possibility that the clinical features merely show the predominant manifestations of the disorder. The EEG must be relied upon for the more accurate assessment of the epileptic components.

Gower(7) in 1907 speaks of the borderland of epilepsy in which "faints", vagal and vaso-vagal attacks, vertigo, migraine and "some sleep symptoms" (night terrors, half-waking, narcolepsy etc.) are likened to epilepsy. He states they are like it but not of it. Both Gower(7) and Wilson(8) classified all types of "convulsions," other than grand and petit mal, as epileptic equivalents. Pugh(9) suggested—"Epileptic equivalents are expressions of convulsive disorders characterized by bizarre motor activity, sensory hallucinations and illusions or acute manifestations involving the autonomic nervous system. There is associated amnesia for the entire episode but no loss of consciousness nor the usual stigmata of a convulsive attack." The bizarre motor activity in 11 of his 18 cases in this series, took the form of destructive attacks on property or person, *i.e.*, abnormal behaviour episodes. Thirty-three of 42 cases of epileptic equivalents showed an abnormal EEG, 16% showed 6 per second flat-topped waves. Putnam and Merritt(10) in 1941 discussed a group of cases of "epilepsy" in which periods of dullness, mental retardation, apathy and mild confusion occurred, in addition to definite attacks of typical grand mal, petit mal and so-called psychomotor types. Slow square-topped waves were a common occurrence in the EEGs.

Penfield(11) is able to produce dream or trance-like states by stimulation of the temporal lobes without the patient completely losing consciousness. Penfield terms these or similar seizures "psychical."

Lennox(12) has pointed out the generic relationship of epilepsy and migraine and here again it appears like it but not of it. Walker(13) discusses behaviour problems in children and reports that in 9 cases showing accompanying cerebral dysrhythmia (not clearly described as to type) improvement resulted from the use of dilantin sodium.

Thus a number of the symptoms in our epileptiform syndrome have been related previously to epilepsy and some of the more recent investigators even remarked on the common finding of slow square-topped wave formation in the EEGs of their cases. By using a variant in the EEG as a common denominator, we have been able to include all of the above unusual clinical features in our epileptiform syndrome, along with the more typical clinical abnormalities generally recognized as psychomotor attacks, psychic variants or equivalents, or psychical seizure.

There is a multitude of references in the literature extolling the many virtues of dilantin sodium. It has proven its value in the control of typical psychomotor and grand mal epilepsy. An article by Shapera(14) reports a significant clinical improvement in two cases of acute migraine on this therapy, a finding we have confirmed. It has even been reported as relieving such diverse clinical conditions as bronchial asthma and abdominal pain. One feels on first noting the wide variety of clinical pictures which are reportedly benefited by this drug, a definite skepticism of the real value of this therapeutic agent. However, we have described a similar diversity of symptoms contributing to a syndrome which is improved selectively by the use of this medication. Such a finding has significantly reduced our skepticism.

In one-third of our series the epileptiform syndrome included typical epilepsy. Furthermore, 5 cases without recognizable epilepsy at the commencement of treatment, subsequently developed grand mal or periods of unconsciousness while under observation. These findings, combined with the common selective response to sodium diphenyl hydantoinate, and the common EEG abnormalities described by Goodwin(3), lead us to the belief that epilepsy has a much wider variety of clinical manifestations than has been hitherto recognized.

The concept of psychomotor epilepsy outlined by Gibbs *et al.*(1) connotes a motor component. In our epileptiform syndrome such manifestations may or may not occur. Psychomotor thus is too restrictive a term for this syndrome. We are at present unable to suggest a more descriptive term than "epileptiform syndrome."

As in typical epilepsy the syndrome appears to be a manifestation of a cortical dysrhythmia and in our series has been predominantly of the idiopathic type. This idiopathic group will no doubt diminish as research uncovers organic abnormalities in the brain which we cannot at present discern. It is conceivable, for example, that localization of metabolic disorders in brain tissue, however slight, might furnish foci for electro-cortical or sub-cortical dysfunction with its attendant clinical manifestations.

The synergistic action of sodium diphenyl hydantoinate and phenobarbital observed by us in the treatment of combined epilepsy is a confirmation of the finding of Cohen *et al.* (15) in 1940. This synergistic action was not found except when grand mal components were present.

Conclusion

One hundred and thirty cases presenting a syndrome including cranialgia, emotional instability, vasomotor instability, impaired consciousness, loss of consciousness, personality disorders and epilepsy, have been found to have a common EEG component, namely half and double alpha variants. Ninety-five percent of the cases had impaired states of consciousness and a significant proportion grand mal epileptic features. The series has shown a selective response to trials on several medications, improvement occurring in 90% of patients placed on dilantin sodium. Phenobarbital or sodium amytal were of little benefit. It is suggested this syndrome is more inclusive than those conditions variously described as psychomotor attacks, psychic variants or equivalents, or psychical seizures, and warrants the term epileptiform syndrome. The syndrome enlarges our conception of the limits of epilepsy.

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FIVE YEARS AFTER SHOCK THERAPY

A Preliminary Report [1]

EDWARD N. HINKO, M. D.,[2] and LOUIS S. LIPSCHUTZ, M. D.[3]

Eloise, Mich.

Considerable literature has accumulated on the subject of shock therapy but there are many questions that remain unanswered. We are attempting a critical evaluation of the shock therapies, that is, the insulin coma method, the metrazol convulsion method, and the electroshock method, with the hope of providing answers to some of the following questions:

1. Does a follow-up study of 5 years after insulin shock therapy indicate that it was only a special method of treatment and now not worth pursuing further, or do the results after five years justify its continued use in the various forms of schizophrenia?

2. How do the results of shock treatment compare with spontaneous recoveries in an adequate untreated control group?

3. How does metrazol compare with insulin as a therapeutic agent in schizophrenia?

4. Is the growing popularity and preference of electroshock based on its relative simplicity of application, or do the results and follow-up studies indicate that it is the most efficient?

5. What type of shock therapy is the most efficient for the various psychiatric disorders?

6. How do the relapses following shock therapy compare with relapses in an untreated control group, and are relapses exceptions or are they frequently to be expected following shock therapy?

This report embodies a statistical review of the results of shock treatment, their comparison with spontaneous recoveries in a control group and the results of our follow-up study to date. This series comprises a total of 457 patients treated with insulin, metrazol and electroshock in the period from September 1937 through July 1941. There were 85 males and 106 females treated with insulin; 131 males and 111 females treated with metrazol, and 24 females treated with electroshock, making a total of 191 treated with insulin; 242 treated with metrazol; and 24 treated with electroshock. Forty-five patients were not included in this series because complications necessitated interruption of treatment. There have been no fatalities.

In evaluating results of treatment, only patients improved sufficiently to leave the hospital on parole were considered. For controls, we endeavored to match the treated patients with regard to age, sex and diagnosis, with patients admitted to the hospital during the years 1935 and 1936. The majority of patients admitted during the treatment years received some type of shock therapy; most of those not treated were found to be physically disqualified for shock therapy. Our untreated or control group comprised 289 patients; 170 males and 119 females. Of this group 103 or 35.6%were paroled.

Insulin treated: 191 patients with 102 or 53.4% paroled.

Metrazol treated: 242 patients with 91 or 37.6% paroled.

Electroshock treated: 24 patients with 11 or 45.8% paroled.

Total paroled: 204 or 44.6% as compared with 35.6% in the untreated control group.

By Diagnostic Groups:

Schizophrenia

Insulin shock treated:

Schizophrenia, catatonic type: 60 patients; 39 or 65% paroled.

Schizophrenia, paranoid type; 52 patients; 32 or 61.5% paroled.

Schizophrenia, hebephrenic type: 11 patients; 1 or 9% paroled.

All other types of schizophrenia: 61 patients; 24 or 39.3% paroled.

[1] From the Wayne County General Hospital, Eloise, Michigan.

The authors wish to express their appreciation to Miss Kathryn Eber, psychiatric social worker in the Wayne County General Hospital, for her assistance in securing the data for the follow-up study.

[2] Senior Psychiatrist.

[3] Clinical Director.

Metrazol treated group:
Schizophrenia, catatonic type; 69 patients; 25 or 36.2% paroled.
Schizophrenia, paranoid type; 46 patients; 18 or 39% paroled.
Schizophrenia, hebephrenic type; 25 patients; 5 or 20% paroled.
All other types of schozophrenia; 62 patients; 20 or 32.2% paroled.

Control group:
Schizophrenia, catatonic type; 71 patients; 32 or 45% paroled.
Schizophrenia, paranoid type; 73 patients; 12 or 16.4% paroled.
Schizophrenia, hebephrenic type; 47 patients; 11 or 23.4% paroled.
All other types of schizophrenia: 58 patients; 25 or 43.1% paroled.

Manic-depressive psychosis

Metrazol treated: 19 patients; 9 or 47.3% paroled.
Control group: 20 patients; 11 or 55% paroled.

Involutional melancholia

Metrazol treated: 13 patients; 9 or 69.2% paroled.
Control group: 11 patients; 8 or 72.2% paroled.
Electroshock treated: 2 patients with a diagnosis of agitated depression, both paroled. 1 with a diagnosis of involutional melancholia was paroled.

The results show that the insulin coma method is more effective than convulsive therapy in schizophrenia, particularly in the catatonic and paranoid types and substantiates the reports by Ross,[4] *et al.*, of the New York State Hospital system.

In 1939 [5] we emphasized that psychological factors are of considerable importance throughout treatment. The general therapeutic setting in the insulin coma method is more intensive and may be responsible for establishing a transference more readily than the less intensive convulsion methods.

By Age Groups:

Insulin treated:
Under 25 years of age: 75 patients; 41 or 54.6% paroled.
25 to 34 years of age: 109 patients; 47 or 43.1% paroled.
35 and over: 28 patients; 16 or 57.1% paroled.

Metrazol treated:
Under 25 years of age: 72 patients; 45 or 48.6% paroled.
25 to 34 years of age: 108 patients; 38 or 35.1% paroled.
35 and over: 68 patients treated; 30 or 44.1% paroled.

Control group:
Under 25 years of age: 67 patients; 28 or 41.7% paroled.
25 to 34 years of age: 113 patients; 45 or 39.8% paroled.
35 and over: 109 patients; 24 or 22% paroled.

The parole rate of treated patients was found to be 9% higher than the parole rate of the untreated group. This, however, is not a true over-all picture of the treated group. In analyzing our data we found that the untreated patient spent an average of 20.4 months in the hospital before parole. The average for treated patients was 13 months despite the fact that a number of these patients were in the hospital for 8 and 9 years before treatment. Of the 204 treated patients who were paroled, 154 received treatment within one year after admission. The average period of hospitalization for this group was 6.5 months as compared to 20.4 months for the untreated control group. In the control group 47 patients were paroled within one year after admission. This results in a parole rate of 16.2% as compared to 56.6% for the group treated and paroled within one year after admission to the hospital. Treatment of this group resulted in the saving of 13.9 months of hospitalization per patient. This is a matter of considerable importance particularly from an administrative point of view, since this saving in time projected for a group of 100 patients would

[4] Ross, Jno. R.: The pharmacological shock treatment of schizophrenia. Am. J. Psychiat., 95: 769-779, 1939.

[5] Lipschutz, L. S., et al.: Evaluation of Therapeutic Factors in Pharmacologic Shock. Am. J. Psychiat., 96: 347-360, 1939.

equal 42,270 patient days; the equivalent of adding 118 beds to the institution's capacity.

Although this follow-up study, started in August 1946, includes patients who were treated not less than 5 years ago, it should be pointed out that for a number of the treated patients the follow-up study is as long as 8½ years. For the control group the maximum period of follow-up is 10 years.

Our preliminary review of patients paroled reveals that 39 or 37.8% of the control group relapsed. In the treated group 111 of the 204 or 54.4% relapsed.

According to type of treatment:

Insulin: 64 or 62.7% relapsed.
Metrazol: 43 or 47.2% relapsed.
Electroshock: 4 or 36.3% relapsed.

Reparoled:

Control group: 15 or 38.4% reparoled.
Treated group: 34 or 30.6% reparoled.
Insulin treated: 18 or 28.1% reparoled.
Metrazol treated: 15 or 34.8% reparoled.
Electroshock treated: 1 or 25% reparoled.

Out of the hospital at time of study:

Control group: 79 or 23.8%.
Treated group: 127 or 27.8%.
Insulin treated: 56 or 29.3%.
Metrazol treated: 63 or 26%.
Electroshock treated: 8 or 33.3%.

Despite the relatively large number of relapses, the insulin treated group still shows a higher percentage of patients out of the hospital than either the metrazol treated or control group. The over-all percentage of patients out of the hospital at time of study was 4% higher for the treated than for the control group.

In this follow-up study we are concerned mainly with the following questions: What was the status of the patients who were at home at the time of study as to self-support, family and social relations, and how do the treated patients compare in this respect with the untreated control group? In order to obtain as accurate an interpretation as possible of the findings it was decided to make a study of the patients' adjustment prior to illness. This study included such data as mental history, educational, occupational, social and familial adjustment, general make-up and attitudes. Similar information was gathered for the period from parole to date of study. In addition, an attempt was made to obtain the reactions of the patient and family to the hospital and to the treatment received. Preliminary reports of our follow-up study of patients who were on parole as of August 1, 1946, indicate that 13 treated patients are making an adequate occupational, social and familial adjustment. One patient is dead and one patient is under the care of a private psychiatrist. Four patients from the control group are at present hospitalized for recurrences of their psychoses. Three are making an adjustment outside of the hospital.

This statistical study 5 years after shock treatment justifies the following conclusions:

1. A higher percentage (9%) of remissions may be expected following shock therapy than when remission is permitted to occur spontaneously.

2. The percentage of patients on parole after 5 years is slightly higher (4%) for the treated than for the control group.

3. This study indicates that the insulin coma method is more effectual than convulsive therapy in schizophrenia, particularly in the catatonic and paranoid types.

4. The growing popularity and preference of electroshock in the treatment of schizophrenia is apparently based on its relative

STATISTICAL SUMMARY

	No. of patients	Paroled	Relapsed	Re-Paroled	On parole at time of study	Average period of hospitalization
Control group	289	103 (35.6%)	39 (37.8%)	15 (38.4%)	79 (23.8%)	20.4 mos.
Treated group	457	204 (44.6%)	111 (54.4%)	34 (30.6%)	127 (27.8%)	
Insulin	191	102 (53.4%)	64 (62.7%)	18 (28.1%)	56 (29.3%)	13 mos.
Metrazol	242	91 (37.6%)	43 (47.2%)	15 (34.8%)	63 (26%)	
Electro-shock	24	11 (45.8%)	4 (36.3%)	1 (25%)	8 (33.3%)	

simplicity of application and lower incidence of complications rather than any actually established therapeutic superiority to other methods. In the treatment of the affective psychoses and the depressions it was found to be more effective than either insulin or metrazol.

5. Relapses following shock therapy are not exceptions and may be expected to occur at least as frequently as in untreated patients.

6. Preliminary follow-up reports on a relatively small number of patients indicate that the treated patients have made a more stable adjustment out of the hospital than the untreated patients of the control group.

7. When treatment is given during the first year of hospital residence, a saving of 422 hospital days per patient is obtained, and remission permitting parole will occur in one-third the time required for spontaneous remission. The practical implications are obvious; calculated for units of 100 treatable patients the bed capacity for this type of patient is more than doubled.

ELECTROENCEPHALOGRAPHIC STUDIES IN IDIOPATHIC EPILEPSY, IDIOPATHIC SYNCOPE AND RELATED DISORDERS IN A U. S. NAVAL HOSPITAL[1]

RALPH ROSSEN, Lieutenant Commander (M. C.) U. S. N. R.[2]

Part I. Physiological and Psychological Mechanisms of Syncope

Purpose and introductory remarks

An attempt has been made in the following analysis to evaluate certain clinical and fundamental data which might aid in the differential diagnosis of an idiopathic convulsive episode and the unexplained syncopal attacks which are so frequently seen in various psychoneurotic complexes and in personality disorders. In order to accomplish this, careful electroencephalographic examination was combined with intense clinical study especially in a group of cases whose cardinal symptoms were those of syncope.

To differentiate the first idiopathic convulsive seizure of a mild nature and a severe syncopal episode with "twitchings" of the musculature in a young adult is in many instances a baffling problem. Further difficulties arise when the differential diagnosis between pyknoleptic and akinetic types of petit mal epilepsy and an unexplained "fainting attack" is attempted especially when the individual is under 20 years of age.

Possible physiological and psychological mechanisms of syncope

Apparently there are physiological and psychological forces at play to account for the common symptom of syncope. From clinical observation it would appear that cerebral anoxia or anoxemia was one of the most frequent reasons for this symptom. A careful history obtained from these cases often elicited the following:

1. The patient complained of sudden blurring and blacking out of vision just prior to his losing consciousness.

2. Frequently the patient would state that he "blacked out" but did not lose consciousness.

3. The patient knew when he was "blacking out" that he might fall and could avoid this by "catching on" to an object or sitting down.

4. The attack almost invariably disappeared within a few seconds.

5. Repeated observations disclosed "twitchings" of the musculature as the patient recovered consciousness.

It has become almost axiomatic to speak of a "faint" as due to lack of blood flow to the head. The practical procedure of laying the patient in the prone position or bending the head between the knees has been accepted for years. It is possible that "fainting" due to sudden lack of blood flow to the head is much more common in certain types of psychoneuroses and personality disorders than is generally accepted and that the physiological explanations for sudden cerebral anoxia or anoxemia may be multiple but usually give the same "chain" of symptoms.

Thus far carotid sinus syncope and "blackout studies" in the field of aviation have received the most study(1, 2, 3). Previous investigation by the author and co-workers in studies of acute arrest of circulation in man(4) revealed that approximately 95 c.c. of blood is present in the head at any one time. In 90% of human subjects this volume of blood when fully saturated with oxygen can maintain consciousness for only 7 seconds or less. The calculations of the same workers(4) reveal that the human brain requires about 1.56 c.c. of oxygen per second. There are about 15.44 c.c. of oxygen present in 95 c.c. of blood when fully saturated. Apparently all the oxygen is not used up at the time that the conscious state is lost because Lennox and Gibbs(5) have shown that unconsciousness results when the venous blood

[1] We wish to take this opportunity to express our thanks to Captain George Raines (M. C.) U. S. N., Captain S. M. Smith (M. C.) U. S. N. R., and other members of the neuro-psychiatric staff who were at the U. S. Naval Hospital, Portsmouth, Va., during the period between January 1944 to January 1946 for their splendid cooperation in making this work possible.

[2] Hastings State Hospital, Hastings, Minnesota.

falls below a saturaturation level of 24%. Since the cardiac output per beat is between 60 c.c. and 75 c.c. and since about one-third of this volume goes to the head per beat it would take about 4 heart beats to pump a volume of blood equal to that in the head at any one time. A transient lack of, or improper, blood supply to the brain can therefore cause very drastic symptoms.

The following symptoms can be produced at will in 90% of young adults when cerebral circulation is arrested with the KRA apparatus(4):

1. Sudden blurring and "blacking out" of vision in 5-7 seconds.
2. Fixation of the eye-balls in the midline (5-7 seconds).
3. Sudden loss of consciousness with turning up of the eyeballs (6-8 seconds). (The state of unconsciousness will persist as long as the apparatus is left on.)
4. Upon release of the apparatus (usually at the time when consciousness is lost) mild tonic and clonic contractions of the musculature which last for up to 10 seconds could be referred to as "twitchings" of the musculature.
5. Recovery of consciousness (upon release of apparatus) in 5-15 seconds.
6. Paresthesias in various parts of the body which occur just as consciousness is lost or as it is regained.

It is interesting to note that the tonic and clonic contractions of the musculature occur only when *oxygen is restored* to the brain but that unconsciousness results when there is a sudden deprivation of oxygen to the brain. It should be noted that the above symptoms occur in sequence only when there is brief arrest of circulation to the brain (usually 8-10 seconds). Prolonged application produces much more pronounced symptoms(4). Electroencephalographic studies by Baldes(4) have shown that slow waves (delta) begin appearing at the time of fixation of the eyes and just before consciousness is lost when the cerebral circulation is arrested in man. The EEG resumes a normal pattern within a few seconds after consciousness is regained.

It is not difficult to realize why the symptoms of syncope can occur so commonly especialy in individuals with labile vasomotor systems. The symptoms of "blackout" "feeling faint," "dizziness," "blurring of vision" or "feeling that the heart has stopped" are frequent enough in certain cases of personality disorder and various psychoneurotic complexes to advance the mechanism of cerebral anoxemia as explained above as a possible etiological factor. Sudden changes in position, excessive fatigue, sudden emotional stress, hunger and the like may also be factors in the production of syncope. Many patients complained of " dizziness" and "seeing black" when suddenly changing from horizontal to vertical position.

DIFFERENTIAL DIAGNOSES BETWEEN SYNCOPE AND EPILEPSY

The following differentials are suggested between idiopathic convulsive disorder and a syncopal attack as seen in various types of personality disorders and psychoneurotic complexes:

EPILEPSY	"PSYCHOGENIC" SYNCOPE
1. Patient tends to minimize or conceal his symptoms.	1. Patient tends to exaggerate or non-minimize his "fainting" or "blackout" spells.
2. Very sudden loss of consciousness or peculiar type of aura (smell, taste, sudden gastric pain, etc.).	2. Sudden feeling of "giddiness" and "dizziness" followed by "blacking out of vision." Sometimes referred to as "blind staggers." Positive and negative scotoma.
3. Loss of consciousness with injury. Loss of consciousness lasting several minutes, hours or longer.	3. Loss of consciousness sudden but usually does not last longer than 15 seconds. Patient seldom falls or injures himself. The unconsciousness is usually preceded by patient "seeing black."
4. Severe tonic and clonic contractions of the musculature, cyanosis, tongue biting, etc.	4. Mild tonic and clonic contractions of the musculature for a few seconds. No tongue biting, cyanosis or incontinence. Skin becomes cold and "clammy." Patient appears pale.
5. Headache, drowsiness and tendency to sleep after attack.	5. Patient recovers completely within a few minutes. Rather euphoric and feels relatively well. No headache or tendency to sleep.

It is also possible that cerebral anoxemia may be one of the exiting factors in the production of a grand mal attack and also that marked emotional instability predisposes to the convulsive seizure. This latter may be a factor in the epileptic who has developed superimposed operational and combat fatigue. Sudden emotional stress or cerebral anoxemia could bring on a seizure in an epileptic or an individual with inherent convulsive tendencies but the same stimuli would bring on only an attack of "syncope" in a psychogenic type of disorder.

TYPICAL CASE STUDIES

The following cases illustrate the preceding discussion. Cases I and II and Figs. 1 and 2 illustrate 2 cases discharged from the Navy with the diagnosis of epilepsy; Case III is a typical history of an individual admitted to the hospital with a diagnosis of a possible convulsive disorder and discharged from the service with the diagnosis of personality disorder.

CASE I.—This patient is a seaman first class, V-6, U. S. Naval Reserve, 19 years of age with 10 months and 7 days active duty prior to his present admission to the sicklist. This patient was admitted to the sicklist aboard ship on 11 June 1945 with the diagnosis of epilepsy. He had been observed in an attack of unconsciousness during which his right cheek muscles began to quiver and following which he had tonic and clonic contractions of his musculature and foamed at the mouth. After recovering consciousness he appeared disoriented and very weak. On 21 July 1945 he was again observed in a convulsion with symptoms as described above. On 3 August 1945 he was transferred to the U. S. Naval Hospital at Oakland, California. At that activity an electroencephalographic examination performed on 7 August 1945 was found to be out of normal limits. On 22 August 1945 he was transferred to this hospital for further study arriving here on 3 September 1945.

On admission this emotionally unstable, irritable white male gave a good coherent history and tended to minimize his seizures. All physical, neurological and indicated laboratory examinations were normal except for repeated electroencephalographic examinations which revealed presumptive evidence of epilepsy. Psychiatric evaluation did not reveal any formal disorder of feeling or thinking. According to the patient's own accepted statements he had suffered two convulsive attacks since June, 1945. He stated that he suddenly lost consciousness and remembered no more until he awoke and found himself lying on the deck feeling drowsy and suffering from headache. Past history revealed that he had suffered from peculiar attacks since the age of 13 during which the right side of his face suddenly began to twitch and his mind became "blank" for an instant. Military history revealed that 8 of his approximate 13 months of service had been sea duty but that he had been in no combat. After a period of observation during which he was not observed in any seizures while a patient at this hospital but because of his past history and repeatedly abnormal EEGs the diagnosis of epilepsy was retained as correct.

CASE II.—This patient is a seaman first class, V-6, U. S. Naval Reserve, 20 years of age with 2 years, 8 months and 1 day active duty prior to his present admission to the sicklist on 28 September 1945 at the U. S. Naval Training Station, Norfolk, Virginia with the diagnosis of epilepsy. According to his health record this patient was observed in a typical grand mal seizure during which he frothed at the mouth, had tonic and clonic contractions of his musculature, lacerated his tongue and scratched his face in falling to the deck. After recovering consciousness he appeared sleepy and dull. Prior to his attack it was noted that he had been typing and suddenly collapsed. He was transferred to this hospital on the same date.

On admission here this co-operative but rather dull white male of low average intelligence tended to minimize any past history of seizures. All physical, neurological and indicated laboratory examinations were negative except for electroencephalographic examinations which all disclosed presumptive evidence of epilepsy. Psychiatric evaluation did not disclose any evidence of a psychosis. According to the patient's own accepted statements he was told that he had his last attack on 28 September 1945 as described above. Past history substantiated by the report of a reliable social service agency on file at this hospital disclosed that he had suffered similar attacks as described above in 1941 and 1943. He first had seizures in the 7th grade but they gradually diminished in intensity until 1941. Military history revealed that 21 of his 41 months of service had been sea duty. During his stay in this hospital the patient was not observed in any seizures. After a period of observation because of the past history and observed seizures the diagnosis of epilepsy was retained as correct.

CASE III.—This patient is a seaman first class, V-6, U. S. Naval Reserve, (SV), 18 years of age with 5 months and 17 days active duty prior to his present admission to the sicklist. He was admitted to the sicklist at the Amphibious Training Base, Naval Operating Base, Camp Bradford, Norfolk, Virginia, on 17 November 1944 with diagnosis undetermined (epilepsy). According to his health record he gave a history of attacks of fainting over the past 8 years at irregular intervals which the neuropsychiatric consultant felt was deserving of further study and on 19 November 1944 he was transferred to this hospital for further disposition.

On admission this well-built 18-year-old white male stated that he has had "fainting spells" for the past 8 years. With a typical attack he suddenly sees grey, then black and remembers nothing more until

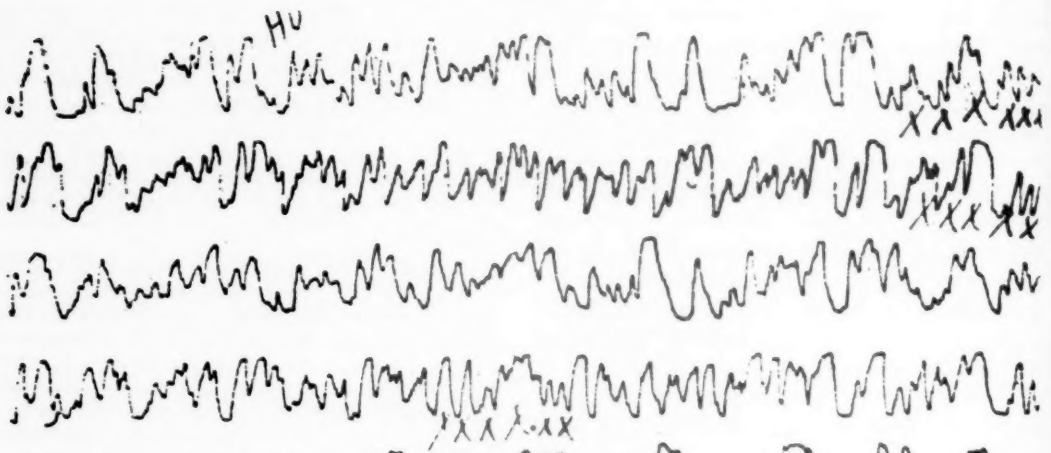


FIG. 1.—EEG: Tracing on patient who was discharged with epilepsy. Patient was 19 years of age at the time of his first Grand Mal Seizure in the Naval service which was observed in June, 1945. He gave a history of having "blank spells" since the age of 13. It was noted that his right cheek began to quiver before his seizure became generalized.

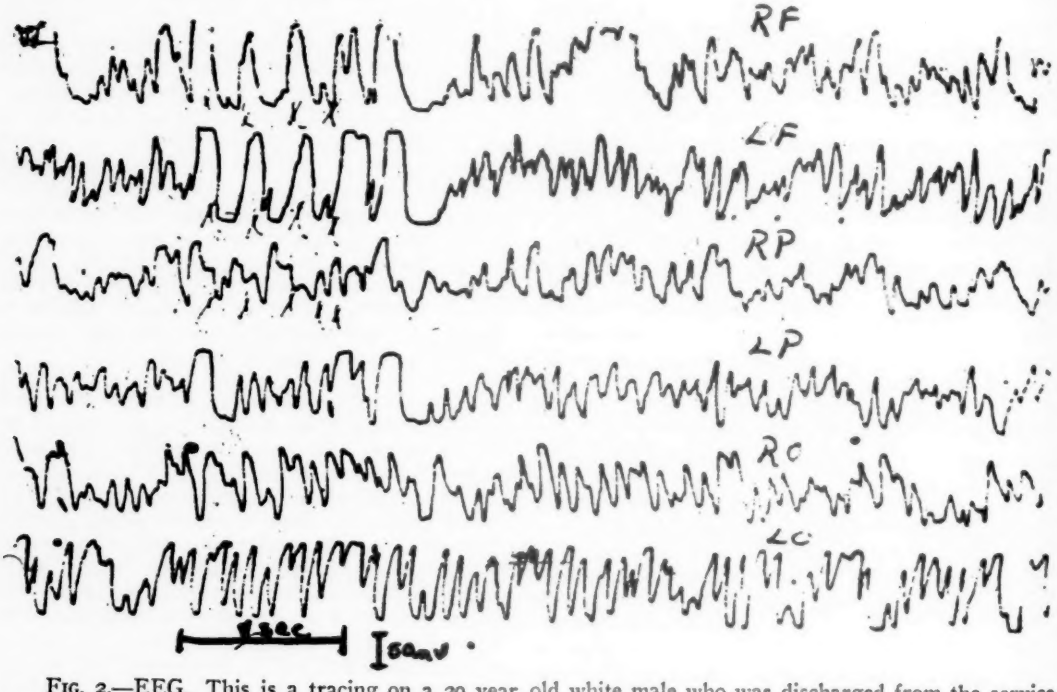


FIG. 2.—EEG. This is a tracing on a 20 year old white male who was discharged from the service with the diagnosis of epilepsy. Patient first had convulsion while in 7th grade. Patient observed in typical Grand Mal attack according to his Health Record, with tonic and clonic generalized convulsion, lacerated tongue and falling to the floor. This tracing prior to administration of urea.

he "'wakes up." Each attack usually lasts only a few seconds and he has never bitten his tongue or soiled himself. Between these spells he feels nervous, shaky, cannot sleep, feels weak and has severe headaches. Psychiatric examination revealed that he was tense, anxious and worried about his condition. Past history disclosed that the above-mentioned symptoms were not new to him and had been present since childhood. All physical, neurological and laboratory tests were within normal limits except for a small scar at the tip of his sacrum which was the residual of the coccygeal cyst which was removed at this hospital in August of this year (1944). Military history revealed that of his approximate 5½ months of service he had already spent over 3½ months on the sicklist to the present time. After a period of observation during which 3 electroencephalographic examinations were found to be within normal limits and it became apparent that his "fainting spells" were only one of many somatic complaints the diagnosis of constitutional psychopathic state, inadequate personality was established.

Part II. Statistical Review of 469 Cases Correlated with Electroencephalographic Findings

Purpose and introductory remarks

The purpose of this study was to see if there was a correlation between the hospital admission diagnosis, the discharge diagnosis and the electroencephalographic findings in 469 patients admitted to a U. S. Naval Hospital with a possible diagnosis of a convulsive disorder.

In addition an analysis was made of 197 patients in this group in regard to the following: the number of these patients who had focal types of EEG, the number who gave a history of head injury, their age incidence, the number with observed grand mal seizures while in the service and the number observed in unconscious attacks without any other grand mal components. Special attention has been given to the frequent histories of syncope obtained from patients with other neuropsychiatric symptoms but who were neurologically negative, did not appear to have clear-cut evidence of a convulsive disorder and who were discharged with diagnoses other than that of epilepsy.

Electroencephalographic technique

The electrical activity of the right and left frontal, parietal and occipital cortex was recorded with a Grass 6-channel EEG. All records were made with monopolar leads. The indifferent electrode was formed by interconnecting the two ear leads. Electrodes were applied to the scalp using the method described by Gibbs(6). Records were taken with the patient lying on a table in a shielded cage. Cortical activity was recorded for at least 10 minutes on each subject. Two minutes were allowed for hyperventilation and 2-3 minutes were allowed for recovery.

Method of interpretation

Gibbs classification of EEG records(7) was used with the following modifications: all paroxysmal tracings (petit mal, psychomotor, grand mal), spikes, S.2 and F.2 tracings were classified as abnormal. His F.1 and S.1 tracings were classified as having minimal abnormalities. An abnormal EEG interpretation in this article would therefore closely correspond to what Gibbs(8) interprets as "greatly abnormal"; those showing minimal abnormalities in this article closely correspond to his "slightly abnormal." All activity in the range of 8 to 13.5 per second was classified as normal. Brief runs of slow activity in the S.1 and S.2 groups that persisted for less than 15 seconds after cessation of 2 minutes hyperventilation were discounted if the tracing was normal before hyperventilation and if the abnormalities did not recur after hyperventilation. All tracings with paroxysmal types of waves were placed in the abnormal group irrespective of whether they occurred before or after hyperventilation. Abnormalities that occurred during the period of hyperventilation were not considered unless they were of the "spike and dome" type. It was the author's opinion that complicating artifacts due to the deep breathing, body movements, muscle potentials, etc., appeared so often as to make this unreliable especially in the interpretation of fast and "spiky" types of activity. In records of all tracings mention was made as to whether the abnormalities were focal or non-focal in type. The whole record was carefully reviewed and random wave counts made on at least 40 seconds of record before and after hyperventilation.

MATERIAL

Of the 469 patients that were admitted with the diagnosis of epilepsy, syncope or a related convulsive disorder 206 were discharged with the diagnosis of epilepsy over a period from February 1, 1944 through September 1, 1945.

Of the total number of cases admitted to this hospital with the diagnosis of epilepsy or a related disorder and who were discharged from this hospital with the diagnosis of epilepsy or other indicated diagnoses as listed, all had complete neuropsychiatric work-ups, indicated laboratory studies and indicated consultations from other departments which included neurosurgical consultation. The majority had routine skull-rays, fasting sugars, lumbar puncture, complete blood studies, urine analysis and, when indicated, special tests such as the Rorschach in addition to their EEG examinations. Repeat EEG examinations were performed when indicated especially where the first tracing was of a borderline type or when the patient had been observed in a typical convulsive seizure but had a normal EEG with his first test. Of the discharged cases of epilepsy 197 were carefully analyzed in regard to age groups, type of seizure observed while in the service, the number who gave a history of head injury, the number who gave a history of focal seizures and the related EEG findings to each of the above-stated groups.

RESULTS

1. *Analysis of Cases with History of Unconscious Attacks or Fainting Spells.*

Of 469 patients admitted with a possible convulsive disorder only 206 were discharged with a diagnosis of epilepsy. Fifty percent of the 206 showed abnormal EEGs and 20% showed slightly abnormal EEGs. One hundred forty-seven of the 469 patients were discharged with the diagnosis of personality disorder and of this group 15% had abnormal EEGs but 25% presented slightly abnormal EEGs. Sixty-two were discharged with the diagnosis of psychoneurosis and of this group 15% had abnormal EEG but only 10% had slightly abnormal EEGs. The remaining 54 patients were discharged with various other diagnoses as listed on Graph 1. They showed an average of 10% abnormal EEG but almost 30% had slightly abnormal EEGs.

2. *Analysis of Cases Discharged with the Diagnosis of Epilepsy.*

a. Those with recently observed seizures. (See Graph 2.) (Insufficient information was available on 9 of these 206 cases and they were not included.) Analysis of 197 cases that were discharged with a diagnosis of epilepsy disclosed that 127 had since being in the service been observed in one or more typical grand mal seizures during which the patient became cyanotic, had tonic and clonic contractions of his musculature, was unconscious and upon recovering consciousness complained of headache and drowsiness. Of this group 63% had abnormal EEG and 11.8% had EEG that were slightly abnormal; 25% had normal EEG. Repeat EEGs were done on those who showed minimal changes with the first tracing. If the second or third tracing was increasingly abnormal the most abnormal EEG was used in tabulation of the statistics.

b. Those with observed seizures prior to naval service. (See Graph 2.) Seventy of the 197 cases analyzed that were discharged from the service with epilepsy had been observed since entering the service in one or more attacks of unconsciousness without any other symptoms typical of a grand mal seizure. However the majority of these cases either had a history of previous grand mal seizures obtained through a reliable social service agency or gave a history of grand mal attacks or attacks of unconsciousness prior to entering the service. Of this group 47.1% showed abnormal EEG and 15.7% showed slightly abnormal EEG.

c. Variation of EEG findings with age in epileptic group. Analysis of the 197 cases that were discharged with the diagnosis of epilepsy disclosed that 89% were in the age group of 17-30, 8% in the age group of 31-35 and 3% in the age group of 36-40. The age distribution of a comparative "control group" (200 cases) revealed that 80% were from 17 to 30 years of age and 20% in the age group of 30 to 40. (See Graph 1 for percentage of EEG abnormality

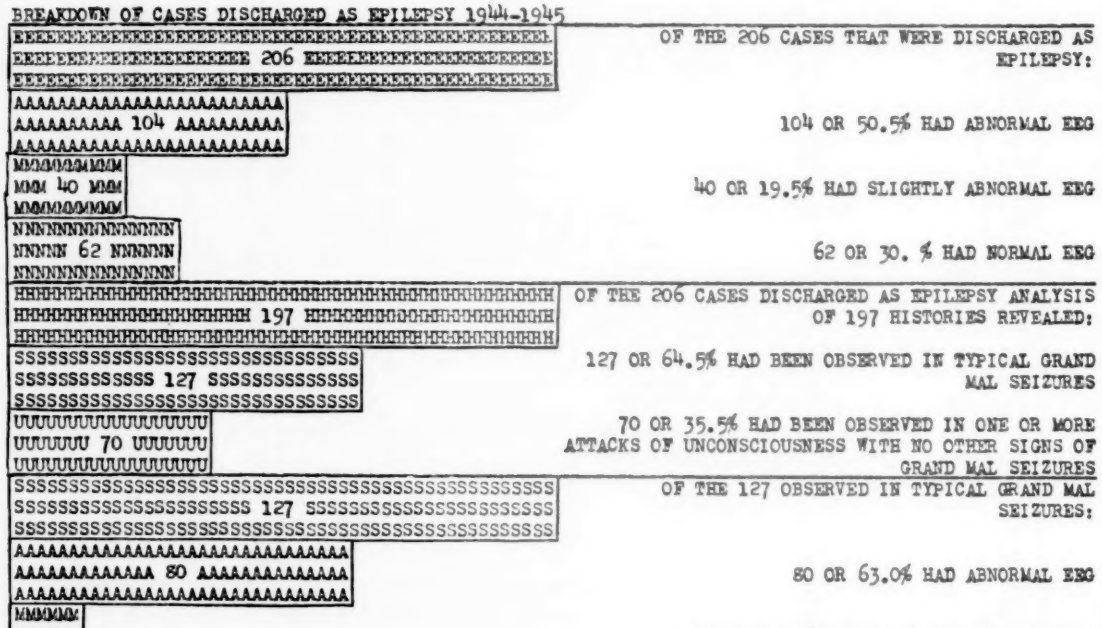
EEG Interpretations N: Normal, including frequencies of 8 to 13.5 per second. Gibbs' class.
A: Abnormal, including S.2, F.2 and paroxysmal tracings. Gibbs' class.
M: Minimal, including S.1 and F.1 tracings. Gibbs' class.

GRAPH 1.—Control series (age group 18-30 years). Groups 2, 3, 4, 5 and 6 show comparison and EEG correlation of admission diagnoses and discharge diagnoses on 469 patients in age groups of 18-30 admitted with the diagnoses of epilepsy, syncope and neurological observation.

in this group.) It should be noted, nowever, that 100 of the epileptics fell in the age group of 17-20 as compared with 17 of the controls, and that there were 103 of the controls in age group of 21-25 years as compared with 41 of the epileptics.

d. Abnormal variations in epileptic EEG

analyzed 41 showed focal abnormalities, 21 of which showed bilateral focal abnormalities, 12 of which were in the frontal area, 2 in the frontal and parietal areas and 7 in the occipital areas. Of the 20 tracings with unilateral abnormality 4 were right frontal, 4 were left frontal, 3 were right parietal, 6



GRAPH 2.

tracings. In a series of 206 patients who were discharged with a diagnosis of epilepsy 41 showed focal abnormalities in the EEG, 28 showed paroxysmal types of tracings(7) and 20 tracings had no abnormalities before hyperventilation but showed abnormalities after hyperventilation. More than 1 tracing was required for patients with proven seizures in 17 cases. In 197 cases

were left parietal and 3 were left frontal and left parietal. In the 28 cases that showed paroxysmal tracings 18 showed "spikes," 2 grand mal waves, 4 psychomotor waves, 1 petit mal, 1 petit mal variant and 2 petit mal and psychomotor waves. It should be mentioned that several cases showing typical "psychomotor waves" and who suffered from psychic equivalents were not discharged

from this hospital but were transferred to another naval activity with the diagnosis of psychosis (epileptic).

e. History of head injury. Analysis of 197 cases disclosed that 19 cases gave a history of head injury prior to the onset of the convulsive disorder. Of this group 15 gave a history of head injury within 5 years of their first seizure. Nine showed greatly abnormal EEG and of this group 4 tracings were focal in type. Four showed slightly abnormal EEG and 1 of these was focal in type. The remaining 2 were normal.

DISCUSSION

A comparison of Gibbs' series of 730 adult epileptics(7) with the 206 cases discharged with the diagnosis of epilepsy of this series shows a striking similarity in the EEG abnormalities: 51.3% and 50.5% respectively. There appears to be a discrepancy in about 12% in those showing minimal abnormalities: 32.4% (Gibbs) as compared with 19.5% in this series (S.1 and F.1 tracings: Gibbs). When EEG findings in 127 of the 206 patients discharged with a diagnosis of epilepsy who were observed with grand mal seizures were compared with Gibbs' series there appeared to be a 12% difference in the abnormal EEG: 51.3% (Gibbs) as compared with 63% in this series. These 127 were a select group and the difference might be explained in that when repeated tracings were done the most abnormal EEG tracing was used for the statistics. Since the Gibbs criteria were used for evaluating this series a comparison was also made between his series of 1000 controls(7), Harty and Gibbs'(9) series of 275 military inductees, Hoefer's control series(10) and a "control group" of 200 pharmacist's mates done at this hospital (11). (See Graph 1.) There was a significant similarity in the "control" series when compared with those of other workers: Gibbs(7) 15.8%, Hoefer(10) 15% and the author's series of 15.5%(11). These figures are for total abnormalities which included greatly and slightly abnormal electroencephalographic readings.

According to Lennox'(12) most recent report approximately 86% of petit mal types of epilepsy occur under the age of 20. It is interesting to note that in his vast experience with epilepsy he had never seen a typical case of true petit mal begin after the age of 20. Our findings are in accordance with this as only 4 cases in a series of 197 discharged epileptics showed the typical "petit mal" waves. Since 70% of the cases discharged with the diagnosis of epilepsy in this series were observed in unconscious attacks with no other symptoms of a grand mal seizure it would appear that a relatively high number of clinical petit mal cases of epilepsy were included. However the majority of these cases gave a history of one or more grand mal seizures in the past which was substantiated by a reliable social service agency. Some of these cases with "attacks of unconsciousness" gave a typical history of "blackout" following head injury as described by Denny-Brown(13). It would appear that the majority of EEG findings appeared as S.2 and F.2 abnormalities in those classified as abnormal(6, 7) and F.1 and S.1 findings in those that were classified as having minimal abnormalities in the EEG(6, 7). It should be noted that almost all of the tracings were taken in interseizure periods.

Comparison of similar age groups in the epileptics and control groups shows a distortion of the representation of the 17-20 year age group in the epileptics. One factor producing this was the average greater length of service in the control group. A second factor is the large number of male epileptics who have their first seizures after the age of 15(14) so that more epilepsy is revealed in the younger group analyzed here while the older epileptics had been weeded out by the induction boards to a great extent. It is interesting to note that in the epileptics the percent with gross abnormalities in the EEG steadily decreases with each sub-group. This has also been noted by other investigators.

COMMENT

Since a high percentage of the armed forces lay between the ages of 18 and 24 years and since 29% of all grand mal seizures present themselves after the age of 20 and approximately 45% of the first grand mal seizure after the age of 15(14) it becomes self-evident why epilepsy assumes

such an important rôle in military activities. Statistical evidence of World War I reveals that 1 out of every 200 inductees was rejected from the armed forces because of a history of seizures(14). Although statistics for World War II are not yet available as to the initial rejection rate because of epilepsy it may be assumed that they would be of about the same proportion and that the majority of cases suffering with idiopathic convulsive disorders were eliminated at the induction centers. However a certain number of individuals either predisposed to or suffering from a convulsive disorder "filtered through' these centers by either minimizing or concealing their affliction or because the cerebral dysrhythmia inherently present had not yet manifested itself as a clinical attack of epilepsy. This group should be commended for their patriotism especially those who stayed in the service for years and underwent terrific stress and strain in combat before their convulsive disorder was discovered or presented itself. How important a part extreme fatigue, unsanitary conditions at the front, loss of sleep, excessive excitement, blast concussion and the like played in the production of the first grand mal seizure cannot be determined at this time. Since 95% of individuals with a hereditary dysrhythmia go through life without a seizure(14) and since 10% of a normal population have a cerebral dysrhythmia(14) it will be of interest to see if future statistics will determine whether or not the intense strain of military environment has increased the incidence of epilepsy in the ten million persons who comprised the armed forces as compared with a civilian population in a similar age group. There is accumulating experimental evidence showing the effects of certain auditory frequencies on the production of "audiogenic seizures" in the rat and the apparent relationship of constitutional and hereditary factors to this type of seizure(15, 16, 17). In relation to this basic work it should be mentioned that certain medical observations at a front line marine activity in the Okinawian invasion (18) revealed cases of convulsive seizures of unexplained etiology during periods of acute stress in combat while under heavy fire. Whether audiogenic stimulation by certain frequencies due to "blast" and mortar fire were factors is debatable but has been suggested by competent medical observers who had firsthand information of these cases.

According to one medical observer certain men while in intense combat were seen to fall suddenly to the ground and undergo severe convulsive seizures following which they made uneventful recovery after several days of rest. Another medical observer in the Iwo Jima campaign(19) stated that during heavy fire he saw several men fall and have tonic contractions of their extremities and myoclonic twitchings of their facial musculature. However he felt that in these cases the patients were not totally unconscious but were suffering from "hysterical fits."

SUMMARY AND CONCLUSIONS

1. The physiological and psychological factors relating to idiopathic syncopal attacks are discussed since this symptom was predominant in the group discharged with non-epileptic diagnoses.

2. The symptoms produced by arresting cerebral circulation in man(4) and the syncopal attacks observed in certain cases of personality disorder and psychoneurosis are compared.

3. The ultimate discharge diagnosis and EEG correlation were considered in 469 patients admitted with a diagnosis of epilepsy or a possible convulsive disorder and analysis showed that less than half were discharged from the naval service with a diagnosis of epilepsy and that the EEG abnormalities were significantly higher in this group.

4. Of 469 cases admitted with the possibility of a convulsive disorder 147 were discharged with a diagnosis of personality disorder and 62 with the diagnosis of psychoneurosis which made up about 44% of the admission group.

5. Analysis of 206 cases discharged from a U. S. naval hospital with a diagnosis of epilepsy is presented. The EEG findings are compared with a control group. There is a similarity between Gibbs' series of EEG findings in 730 adult epileptics and with his series of "controls."

6. Nineteen cases or 9.6% of the series gave a history of head injury 1 to 10 years

prior to their first convulsive seizure. Of these 19 cases 11 had abnormal EEG, 5 of which were focal in type.

7. Of this series 127 patients had been observed in typical grand mal seizures, and of this group 63% had greatly abnormal EEG and 11.8% showed slightly abnormal EEGs.

8. Typical petit mal histories in this series were rare as were typical petit mal waves in the EEG tracings. A possible explanation for this may be that all of the patients considered were over 17 years of age and 90% of them were in the age group of 17-30 years; the remaining 10% were over 30 years of age.

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SOCIO-ECONOMIC ASPECTS OF THE SHOCK THERAPIES IN SCHIZOPHRENIA [1]

FRED FELDMAN, M. D., SAMUEL SUSSELMAN, M. D., AND S. EUGENE BARRERA, M. D.
Albany, N. Y.

The benefits of electroshock therapy in the various categories of mental illness are controversial. The depressions respond almost completely, and schizophrenia less felicitously. But although the schizophrenic patient rarely harvests a full recovery, nevertheless his life and his family's are radically changed. In many cases schizophrenic patients electrically treated are able to return home, a journey back which the præcox of a decade ago rarely knew. The partially restored human being, outwardly not sick enough for institutionalization, but still socially maimed, constitutes a socio-economic problem of considerable consequence. The purpose of this paper is to consider the problem.

Our attention was impelled towards this issue when we began to analyze the first fruitful years of electrotherapy. The success of the treatment was written in what appeared to be the triumphant figures which showed a 50% decline in commitment of patients from the wards of a private acute treatment center to state hospitals; 95% of depressed patients were sent to their homes—the figure had always hovered at less than 60%. Sixty-six percent of schizophrenics returned to home and family—had there ever before been such a record after a brief thirty days of treatment?

We became aware of a new problem in psychiatry in diverse ways. Schizophrenic patients of the community became well known to us—for we seldom lost contact long enough to forget their faces and problems—and those of their families. They returned for further courses of treatment, sedatives, psychotherapy—and their families for advice and reassurance. This contrasted strongly with the depressed patients and manics who became well almost precipitously, resumed adult responsibilities and were soon no longer thought of as "patients." Few schizophrenics discarded the designation "patient," even after assiduous treatment.

Although electroshock therapy and its results will be stressed in this paper, consideration will also be given to insulin therapy and its effects. Electrotherapy has supplanted insulin techniques in great measure for reasons of economy, safety and provisional effectiveness, but much of the statistical data regarding the restoration of patients is based on the insulin-treated groups of 5, 6 and 7 years ago. In any event, from one viewpoint the results are the same—a patient altered, tempered, deflected by treatment, but yet not completely well, has come home and must be fitted into the life of his family. In general, it is felt that electrotherapy is repeating the achievements of insulin, but we are still some distance from labeling these achievements as triumphs.

The argument here offered follows this chain of reasoning: (1) Shock therapy has effected the release from hospital care of large numbers of psychotic patients who would otherwise have remained hospitalized for longer periods of time, in some instances for life. Statistical data from state hospitals and private institutions have been marshalled to demonstrate this. (2) Significant numbers of these patients (particularly schizophrenics but also some patients with affective psychoses) are not sufficiently well to be easily integrated into the complex life of the family and require adjustments by the family. This phase is reflected specifically in the high readmission rate of schizophrenics and in the follow-up studies of schizophrenics in the community. It is reflected less factually, but still more tangibly, in our own day by day attendance of a group of schizophrenic patients returned to the community. (3) The burden carried by the family may sometimes be disproportionately high compared with the benefits to the patient and to society from his release. This burden encompasses finan-

[1] From the Dept. of Neurology and Psychiatry, Albany Medical College, Albany, N. Y.

cial, social and emotional constrictions on the family in many instances. (4) The problem is a constantly fluctuating one, and the equation of patient, family and society will vary with changes in therapeutic efficacy, length of hospitalization, and in such broader factors as family economic levels and general education regarding mental illness. (5) The resolution of this problem varies with these factors, but suggestions are offered for attacking the issue as it stands today.

Admissions, Discharges and Commitments of Schizophrenics

Vital statistics on mental hospital activities have been meager during the war years. It has not been possible to collect full data from any one state or from a group of large hospitals relevant to the effect of electroshock therapy on admissions and discharges. These figures have not been collated.

Studies on the results of insulin coma therapy are numerous. Reports on the outcome of electric convulsive therapy and of combined insulin-electric treatment are relatively few. Metrazol convulsive therapy is falling into disuse. There is no uniformity in the method of reporting results. Some papers report small series of patients. Others fail to state the duration of illness and do not separate acute from chronic cases. Other studies, according to Kalinowsky and Hoch(1), are "frequently inconclusive as they collect dissimilar material from institutions which may differ widely regarding diagnostic principles, types of patients admitted, intensity of treatment and evaluation." Follow-up material is, likewise, subject to the same criticism. All sources of information betoken the fact that significantly increased numbers of treated psychotic patients have been returned to their communities during the epoch of shock therapy.

The more abundant information is drawn from studies on insulin-treated patients, several samples of which are cited below. Malzberg(2) in 1938 reviewed 1039 cases of whom 510 (49%) had been paroled. Of this latter group, 25% returned to the hospital within 1 year. Gralnick(3) in 1945 reported a 7-year survey of 554 insulin-treated schizophrenics. An interesting and illuminating analysis of rate of return revealed that 73% of those who had been treated in 1937 had been required to surrender their parole during the subsequent 6 years. The figures of 1938, 1939 and 1940 were between 49% and 54%, and in 1942, the last year examined, the percentage stood at only 13%. The significant conclusion was that for the 6-year period, 75% of those treated had proven to be eventual failures.

The compelling deduction from this study is that 268 patients returned to their communities, their families, their responsibilities and to their accountableness, and that a large number of these men and women failed to fulfill the hopes projected for them. Our own experience with patients of this type—living in the same city with them, responsive to the written, telephoned and personal requests for advice from their families—leads us to believe that many of them must have imposed economic and emotional enigmas for their relatives. How well or ill they adjusted during the 1 or 5 years at home has not been objectively studied or reported so far as can be determined. (Probably every psychiatrist can patch together his own conception of the intimate home life of these patients). Many undoubtedly improved their adjustment by transferring from the hospital to the home. Some brightened the lives of parents or spouse for long or short periods. Some contributed materially to friendship, family or society. The full value of emotional and socio-economic experiences like these cannot, of course, be measured. It is probable, however, that some patients imparted little to the group which received them, while requiring care and devotion to a growing degree. It is probable that many were retained in the family group beyond the point of worth to themselves or to others (in the broadest sense), beyond the day when rehospitalization might have reenforced temporary gains, beyond the signposts spelling increased burdens and perhaps hardships for the family group.

Taylor(4) in 1945 reviewed 214 schizophrenics who had received insulin therapy during 1937 through 1939. Of this group 153 (71%) had been released following therapy and 125 were still out of the hospital 5 years later. One hundred five patients

had not returned to the hospital at all and an additional 20 had been rehospitalized and subsequently released again. These figures are at considerable variance with the aforementioned studies, since only 28 patients (18%) of the discharged group had eventuated as failures. The data do not permit a qualitative analysis of the reasons for this discrepancy. The criteria for parole, discharge and rehospitalization in different hospitals have not been stabilized. Taylor reported that his patients were checked once yearly by social workers, noting that no definite conclusions were inferable except that many patients seemed better. The need for more complete appraisal of these patients at home is apparent. Taylor points out that this group of patients were out of the hospital a total of 2409 weeks, and validly concluded that the saving of more than $24,000 (at $10 per week) must be taken into consideration. It would be difficult to be sure, however, that the cost of these patients to their families and to society, in tangible costs and emotional levies together, was not more than $24,000.

Several other reports reviewed by Kalinowsky and Hoch(1) reveal remission rates in early schizophrenics 5 or 6 times greater than before shock therapy. Within 3 years, however, according to Bond and Rivers(5), 50% of the remissions had shown their full illness again. Cheney and Clowe(6) found that after 2½ years a quarter of their remissions had returned to the schizophrenic pattern.

A smaller number of reports on electrically treated patients has been published. Normal and Worthington(7) treated 59 schizophrenics of whom 13 were "on visit," that is out of the hospital, at the time of the survey. No data on their home adjustment were made available.

Malzberg(8) reviewing the findings in 3 different New York State Hospitals, reports recovered and much improved cases ranging from 41.1% to 16.2%. Impastato and Almansi(9) find that the results from ECT are comparable to those obtained through the use of insulin coma therapy. Kalinowsky (10) found, in treating 275 institutionalized schizophrenics with a minimum of 20 convulsions, that the remission rate was 68.3% in cases of less than 6 months duration, 41.5% in cases of 6 months to 2 years duration and 9.2% in patients ill more than 2 years.

Combined treatment using various methods of employing both insulin and electrotherapy offers new possibilities for improving the results. Von Braunmuhl(11), reviewing the effect of combined treatment on 563 patients after 5 years, found relapses in 9.6% of the cured and 32.0% of the improved who had been ill less than 6 months at the time of treatment; 22.8% of the cured and 8.7% of the improved, when the illness was from 6 months to 1 year; and when the patient was ill more than 1 year, 28.3% of the cured and 12.8% of the improved relapsed.

Chapuis and Georgi(12), treating cases of less than 6 months duration, were able to effect a remission in 94.6% with combined therapy. Seventy percent of these appeared well after 5 years. After 7 years, 50% were still stable. The relapses occurring in the sixth and seventh years were among the "social" remissions and not the "full' remissions.

Supplementary data are drawn from a detailed statistical study of the psychotic patients admitted to the closed psychiatric wards of a general hospital serving a large city. The year 1936, on the threshold of the shock therapies, has been compared with the year 1943, when this form of treatment had attained as full acceptance, perhaps, as it will know for some time to come.

Before examining the significance of the greatly decreased commitment rate between 1936 and 1943 it is necessary to explain the reasons for the wide discrepancy in the total admissions of schizophrenics in these years. Almost four times as many patients diagnosed as schizophrenics were admitted in 1943 as in 1936, 179 as compared with 45. Four factors may help to account for this discrepancy. The first lies in the differential rate of readmissions during these years. Readmissions may be considered failures in therapy, and the actual number of schizophrenics in a community should be estimated from first admissions.

The second factor to consider is that the total number of patients of all kinds received

by the closed psychiatric wards of the hospital during 1943 was 25% larger than in 1936. The accretion was really greater than this, since certain categories of patients placed on the closed wards in 1936 were hospitalized on open wards in 1943 and were, therefore, not included in the admission figures. Patients with central nervous system syphilis, epilepsy, senility and other organic conditions were frequently treated on the open ward when they were tractable. Alcoholics were rejected at times because of lack of space.

The third factor is the significant change in diagnostic criteria between 1936 and 1943. This shift was especially prominent in the category of the manic state, which was diagnosed frequently in 1936 (43 times) and infrequently in 1943 (19 times). The reasons for this drift away from the manic diagnosis need not be discussed except to point out that it is fairly common to find that patients initially diagnosed as manics are reclassified as schizophrenics on later admission.

A fourth factor accounting for mounting schizophrenic admissions is inherent in the nature of electrotherapy. Patients with very early signs of morbidity are now hospitalized for electric treatments whereas 10 years ago they would not have been admitted, because this therapy was not available. These early manifestations now lead to treatment in an acute treatment center, whereas a decade ago the syndrome would have been permitted to blossom until direct admission to a state hospital was necessary.

The significance of the declining commitments may now be stressed. The commitment rate for all schizophrenics in 1936 was 31 out of 45 cases or 69%, and the rate in 1943 was 60 out of 179 or 34%. The patients who were not committed were restored to the community. This figure stood at 10 in 1936 but climbed to 94 in 1943. It is our impression that the majority of these patients, although discharged free from delusions and bizarre behavior, could not adjust satisfactorily in the complex society of the community. Readmission tallies support this viewpoint to some extent, since 50 of the schizophrenics seen in 1943 were readmissions, or 28%. Moreover, of the readmitted patients, 25 or 50% were committed, whereas only 27% of first admissions were committed.

In brief, our experience supports the feeling of Kalinowsky and Hoch that follow-up material is still scarce and inadequately controlled in terms of duration of illness, diagnosis and intensiveness of therapy. We would add that there has been insufficient scouting of the "blind spot" between the end of one period of therapy and the beginning of the next, especially in terms of the family's calls on its own resilience to prolong the home care of the patient.

TABLE I

ADMISSIONS AND COMMITMENTS OF SCHIZOPHRENICS, 1936, 1943

	Schizophrenics admitted			Schizophrenics committed to state hospital		
	1st adm.	Readm.	Total	1st adm.	Readm.	Total
1936	36	9	45	26(73%)	5(55%)	31(69%)
1943	129	50	179	35(27%)	25(50%)	60(34%)

A special phase of treatment which can bear scrutiny is the recent upsurge in the number of patients who are being treated with ambulatory electrotherapy. Although sparsely documented in the available literature, the use of this method is a recognized fact. The transition from in-patient to out-patient therapy in our hospital has been recently reported(13). The impression is gained that many patients with psychoses and with less serious psychiatric illnesses are given repeated electrotherapy in the psychiatrist's office or as out-patients in acute treatment centers. Following treatment the more or less confused patient is led to his home by a relative or friend.

Ambulatory treatment has peculiar appeal for the families of psychotic patients. It offers them what appears to be a ready, quick and active solution to what is often a terrifying problem. More important, however, is the fact that it suggests a means for escaping the stigma which state hospital commitment implies to them, their neighbors and

friends. Although much has been done to educate the public away from such an attitude, it still prevails. Ambulatory treatment has the further appeal of avoiding the expense of hospitalization. In addition, it is maintained by some that keeping patients in a normal home environment has, for some cases at least, a greater psychotherapeutic effect.

The problems precipitated by this form of treatment are many. Transportation must be provided for both the patient and the escort. This is often time-consuming and expensive. The escort must be a responsible person and the loss of income to him may be considerable. The patient may be resistive, requiring considerable persuasion two or three times a week. He may even have to be compelled forcibly to keep his appointment. During the time the patient is undergoing treatment he may insist on working or on attending to affairs away from his home. Such endeavors, because of his confused state, may be hazardous not only to his personal safety and to the safety of others, but also may harm his relationships with associates who misinterpret his confusion and memory impairment. In the occasional instances where an organic factor intervenes, and the patient becomes paranoid or aggressive, a further burden is imposed on the already overloaded family. The anxiety in such families each time the telephone rings is understandable. What new escapade has occurred? What new embarrassment has been created by the unstable patient roaming the streets? Problems peculiar to individual family situations are not rare. Despite the fact that full instructions are given to families they may be unable, for financial or other reasons, to carry them out. For example: a young woman undergoing ambulatory electrotherapy was found by a social agency to be caring for her infant child while markedly confused as a result of treatment. The patient was alone, for her husband had to work, and the high school girl (inadequate assistance at best) employed to help her was not available.

This stress on the negative aspects of ambulatory electrotherapy is admittedly biased in order to make vivid the situation of the family with a partially cured patient at home. The positive, fruitful gains of itinerant electrotherapy outweigh these deterrents by far. Indeed, we have in a recent paper(13) heralded the development of ambulatory therapy, and described our own experience with a large number of cases. The schizophrenic patient poses the most difficult problems with this form of treatment, and the predicament of the family sheltering the ambulatory patient parallels that of families harboring discharged schizophrenics. Indeed, the discharge is often only temporary, and many schizophrenics are held to a schedule of interval therapy which is, in a sense, widely-spaced ambulatory therapy. It is necessary to add that these thoughts apply to only a portion of those patients in whom treatment is undertaken.

Discussion

It is recognized that shock therapy yields most auspicious results in patients of certain types, intensities and durations of illnesses. Yet in an illness like schizophrenia, where therapy held out little hope for decades, and then suddenly gains power, it is inevitable that patients of all ages, of all types, of all stages, will be subjected to the new remedy. Where the young, newfledged patient may respond and return to useful work, the more advanced patient may show similar surface improvement, but fail when he attempts adjustment at home. This failure may long be camouflaged by the hopes of the family, be it however intellectually on guard.

It may be that psychiatry has not yet determined the optimum number of electric treatments for different types of cases, or the duration of the course of treatment. While we pore over the many studies necessary to yield these answers, the socio-economic problems appear as side-products of the diverse endeavors. In some instances it seems desirable to treat for a month, and then observe behavior following the subsidence of the confusion period. But if behavior shows the psychosis continuing, resumption of therapy may be delayed, neglected, postponed "for a short time," "forgotten" or otherwise deferred. If therapy continues for 20, 30, 50 treatments, however long, a period of observation must ensue (during the years we are painstakingly

gathering criteria and end points, and drawing conclusions) during which the family must help the patient make his adjustment.

If, in a community of two or three hundred thousand, 94 schizophrenics are restored in one year, the totals for the state and country must be impressive. These patients have been subjected to electric or insulin therapy or both, and the venom of the psychosis extracted, but snags still hamper their adjustments in many instances. This socio-economic aspect of the parolee and of the ambulatory shock patient, together with their families' problems, requires careful study. Our own impression of this need springs from day-to-day attempts to help them meet these obstacles. No statistical analysis or objective survey of conditions at home has been essayed, but programs in this direction grew in the form of questionnaires used to study the home behavior of patients on ambulatory shock treatments. Hundreds of patients were seen during the development of this mode of therapy, many of them the schizophrenics from whom the sharpest thorns of illness had been removed but who were still sick.

The advisability of electrotherapy or of insulin therapy at this stage of our knowledge cannot be challenged, but a reconnoitering of the sociological settings into which the patients return would seem to indicate that more careful control of this period is necessary. When the patient's inadequacies interfere radically with the lives of the members of his family; when the economic burden mounts steeply; when constant supervision is necessary—in short when the patient is patently not good for his family, and equally, the family not good for him—further steps should be taken. These steps are usually too long delayed for understandable reasons of pride, sympathy and hope. The necessary steps are not inevitably repetition of shock therapy nor certification to a state hospital. Custodial care at some level in between, bulwarked by occupational therapy and psychotherapy, might resolve this Gordian knot. The so-called stigma of full commitment, and the despair of having a loved one confined with patients considered hopelessly and irretrievably ill, might thus be avoided.

One fundamental result has insidiously emerged from the new emphasis on active treatment of psychoses. Stated baldly, it is that there has been a shift of a not inconsiderable portion of the responsibility for the care of the schizophrenic from the state to the individual. Where formerly most psychotics were placed in state hospitals as soon as their usefulness at home was over, many are now treated privately to the extent that individual financial resources and individual family situations permit. Whether this constitutes a criticism of the economic direction in which the care of the mentally ill is moving will depend upon one's own social attitudes. However, the state should recognize that new problems exist as an outgrowth of new procedures and should redefine its responsibilities for the care of the psychotic in terms which will take into consideration the social and economic resultants. Furthermore, plans should be outlined which will anticipate and solve as many of these problems as possible. Such a plan is proposed below.

It must be emphasized that we are not primarily concerned with protecting the family from the so-called "stigma" of mental illness or of state hospitals. We hope that some plan may eventually be evolved which will teach people in general the true nature of mental illness and the real value of state hospitals, while at the same time providing more ample care of the patient. We hope that such a plan may protect the family from its own emotional quicksands, and thereby become an important plank in the mental hygiene structure of the community. The family is thus liberated from stigma in the most constructive way—by being encouraged to participate in the community's coordinated endeavors to solve the problems of mental illness at every level, from medical to economic. It is not possible to present a fully blueprinted plan at this time but the following points should be emphasized. It should be pointed out that none of the suggestions to be made are completely new to psychiatric care, when considered individually. However, they have been reformulated, reorganized and newly stressed to find an answer for a fresh problem, one of the many evolving from new therapeutic attempts.

An initial effort in fostering the home care of ambulatory or "interval" patients should be directed at furthering the understanding of relatives while the patients are still under active treatment. In a recent paper(14) we described the individual and group methods utilizable in the instruction of relatives. It was pointed out that the queries and problems of individual relatives are frequently overlooked through lack of time, and it was suggested that a meeting each morning with a group of relatives seeking information, of perhaps an hour's duration, would not only provide more ample answers but would also initiate the special communizing values of group sharing of emotional problems.

Secondly, the rôle of the psychiatric social worker in the problems here posed should be stressed. First, he can participate in the group work with patients and relatives in the hospital setting itself. Second, he can collaborate with the psychiatrist in many features of ambulatory therapy, including especially the group conferences with relatives during the waiting period while patients are being treated. Giving reassurance, obtaining information concerning home and community behavior, and evaluating home influences are part of this function. Third, the more adequate supervision of home behavior may be entrusted to skilled workers. The evaluation of this interval period takes precedence over considerations of renewed therapy or custody. A careful measure of the social value of the patient, combined with an optimum threshold of suspicion in relatives, will eventually lead to the proper reinstitution of care, whether occupational, recreative, custodial, supportive or full hospitalization.

The third building stone in the prolonged care of schizophrenic patients in the community would be adequate followup by means of psychiatric examination. This step would be supplemented by the endeavors of the social worker. A planned schedule for the periodic evaluation of treated patients, whether private or clinic cases, should be adhered to. The problems arising because of limited personnel and resources must be met by education and group techniques.

A fourth, and most important, consideration involves the establishment of acute treatment units strategically located geographically and apart from the state hospital itself. Such centers would, from their inception, be more readily accepted by the community than the older state hospitals from which relatively few patients return home. Moreover, they would, by their educational activities serve to remove some of the stigma with which state hospitals are invested in the eyes of the public. The acute treatment units should be staffed by teams of psychiatrists, psychologists, social workers and nurses and ought to operate as reception centers for acute psychotics. Patients who are amenable to treatment can be studied, treated and housed long enough to fully assess the results of treatment before returning home. Patients whose prognoses are poor or who have failed to respond to treatment can be transferred to centrally located state hospitals for custodial care and longer-ranging therapy. The units, being a part of the community, can act as public hygiene centers for the purpose of education, for prophylactic mental hygiene, for child guidance clinics and for ambulatory shock treatment in carefully selected cases. They will be readily accessible to disturbed patients and the "repeater" whose personality aberrations and whose home situation will be familiar to the professional group.

The problem of obtaining personnel for these expanding functions is not a simple one. It is an aspect of the larger task of paying for medical security. It adds to the job of training and distributing psychiatrists, social workers and psychologists. It may seem impractical when we think of the existing state hospitals already understaffed, overpopulated, meagerly subsidized. The shock therapies seem to have opened one small ventway to relieve this growing pressure on our resources. But the patients whom shock frees from the hospitals (and of whom, conversely, the hospitals are lightened) constitute the important, threshold, early, salvageable group. The burden of the state hospitals is made hardly less heavy. Their relief must come additionally from many other sources. The return of these patients to hospital channels should be encouraged when necessary. Provision of hospitals expressly for them makes avail-

able more intensive care and treatment and makes it less likely that they will be neglected in the understaffed large hospitals.

Summary

The shock therapies have provided a portion of relief for the enigmas of schizophrenia. However, socio-economic problems of considerable import have emerged together with the partial successes of this therapy. For one thing, there has been a subtle shift of responsibility for the care of the mentally ill patient from the state to the individual family in many instances. Secondly, the family has been burdened with issues other than the immediate care of the patient, including changes in their living habits. Perhaps the major question which many families have been poorly prepared to meet lies in the responsibility for resumption of treatment at the proper time. Suggestions have been made for a plan designed to meet some of these problems. They embrace psychiatric, social and economic considerations together with a program for mental hygiene.

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ELECTRIC CONVULSIVE THERAPY IN STAMMERING [1]

THELMA V. OWEN, M. D., AND MARGUERITE G. STEMMERMANN, M. D.

Huntington, W. Va.

When a disease whose etiology is controversial is treated by a technique whose action is obscure, it is possible that the results may illuminate both the illness and the therapy. The basis for stammering has been variously attributed to physical deficiencies, physiological imbalances, psychological maladjustments, or a combination thereof. Likewise variously, the benefits from electric treatments have been explained on the basis of their physical, physiological or psychological effects. Which explanation one prefers would seem to depend rather upon the proclivities of the reader than upon the merits of the investigations upon which the explanations are based (psychological, physiological, or psychiatric). Since the investigations are in many cases equally painstaking and conscientious, the maximum benefit to the stammerer should derive either from an entirely new therapeutic technique, an eclectic one, or both.

It is the purpose of this paper to correlate the pluralistic approach toward stammering with one of the newer therapies, electric convulsive. To test the practical applicability and efficacy of the method, a case study with these points in mind is reported in detail.

The patient, a 20-year-old white girl, was referred by the State Rehabilitation Department because of a speech defect which prevented her from procuring work. Six months previously she had graduated from high school, where, in spite of the fact that her grades were necessarily dependent upon written work alone, she had been able to maintain a "B" average. Apparently her social adjustment was also satisfactory, as she had many girl friends and enjoyed dancing and motion pictures. She avoided going out with the opposite sex after one experience, presumably because of the speech defect. In spite of her other assets, she was unable to obtain employment as a typist, for which she had trained, because of severe stammering that had progressed to almost complete speech stoppage. Hospitalization for a reeducational program was therefore recommended.

On admission the patient was cooperative and obviously eager to please. She was appreciative of anything done for her either by the personnel or other patients. She rarely spoke voluntarily and, unless asked a question which could be answered by one word, there was complete speech blockage. Historical data, both psychiatric and medical, were secured from the patient in numerous sessions, the interviews being used for speech training as well as to secure information.

The patient was the second of 3 children, having a sister 10 years older and a brother 6 years younger, the latter dying in infancy. It is unlikely that the 3 children were of the same father, as the mother's relationships with the opposite sex, then and now, apparently were governed rather by financial expediency than by social acceptibility. Early in life, the patient had had no speech difficulties, although an uncle with whom she lived for a short time was a stammerer. The father deserted the family early and the patient remembers nothing about him. Soon after the death of the infant brother, the mother injured her knee, producing a disability which, while slight, has provided ample excuse for her failing to seek legitimate employment. The patient dimly remembers many unrelated men about the home, one of whom made a mild attempt at sexual play with her.

Soon after this incident, when the patient was 7 years old, she and her mother were sent to the County Detention Home for reasons which are unclear, but which can probably be attributed to the mother's pauperism and her antisocial reputation in the community. The older sister, then working in a factory, made her home with an uncle. The patient's development up to this time had apparently been normal. She had never shown evidence of left-handedness or mixed cerebral dominance. While the patient could not remember any specific incident which precipitated the stammering, her entire experience in the detention home was a traumatic one. Her speech difficulties began soon after her arrival there, when she was being questioned repeatedly by everyone in the home concerning her previous life and her mother's activities. She remained in the home a year, where she started school, completing the first grade in spite of her stuttering. She felt that she was treated adequately, if not well, but missed her mother, whom, housed in another building, she was permitted only to visit.

At the end of one year, the mother acquired a job and established a home for the patient. The job lasted only a short time, the family then being partially supported by the Department of Public Assistance, until the patient was hospitalized. The income from this source was probably supplemented by "gifts" from male friends provided both the

[1] From the Owen Clinic, Huntington, West Virginia.

mother and the older sister, the latter flagrantly following her mother's surreptitious career. When the patient was 10 years of age, the sister became illegitimately pregnant. Beyond wondering why the baby was not born at home and what had become of the infant, the patient suppressed the feelings of shame which the incident generated, as effectively as she had the earlier sexual experience.

The feelings of guilt and disgrace initiated by the detention home experience were now supplemented by the irregular behavior of the mother and sister, behavior which the patient could neither condone nor accept. Her stammering became progressively worse and, except for the eighth and ninth grades when she had a sympathetic and understanding teacher, she rarely even attempted oral recitations. However, she never failed a grade and in fact did well in those subjects in which written work predominated. In high school she majored in commercial subjects, not because she was particularly interested in business, but because she felt that they offered her the best chance for becoming self-supporting and independent of the way of life endorsed by her mother and sister.

While her family did not flaunt their conduct before her, she was subconsciously aware of their activities, but chose to ignore them. To avoid this intolerable awareness, she repressed in herself all desire for and even information about sexual experiences. At no time did she openly criticise her family or permit others to do so. Her loyalty and sympathy through the years were so exaggerated that she had successfully suppressed any feelings of resentment. On the other hand, neither did she ever waver from her goal of earning an honest living and maintaining her self-imposed high moral standards. Although lacking any self-assurance that she could attain her ends, she never ceased striving for them.

The mother, however, either consciously or unconsciously, lest she lose the public assistance support for her child, did all in her power to foster the patient's handicaps and feelings of inferiority. Upon being introduced to the psychiatrist, the mother took charge of the conversation, thwarting the patient's feeble efforts to talk by continually declaring that the girl was incapable of speech and she, the mother, "always talked for her." Although reputed to be an excellent cook herself, the mother had never taught the patient, or even allowed her, to care for her own clothes, much less to cook or do other types of housework. The mother proudly stated, "I do everything for her, even talk."

The patient's general motor development, unlike that of many stutterers was not retarded. In fact, she learned new mechanical skills much more easily than intellectual ones. In the hospital, she quickly gained a reputation for free-hand drawing, designing greeting cards and sketching patterns to be applied to woodworking projects. The relaxation which was encouraged during the course of her speech training was never as successfully accomplished as by paper and crayon. At 10 years of age, while in the fourth grade, her I. Q. on the Helmon-Nelson scale was 85, a figure which agreed with the clinical evaluation on admission to the hospital. At 21 years of age, one year following graduation from high school, a Nursing Aptitude Profile Test indicated an I. Q. of 98.

Physically the patient was an attractive girl with a cheerful and ready smile, until she began to speak. There would then be grimacing, clenching of the fists, quickening of respirations, sweating and similar psychomotor manifestations of a severe fear reaction. Both whispering and singing, if attempted at all, were accompanied by only slightly less severe somatic symptoms of terror. In neither instance was the resulting oral response intelligible beyond an occasional monosyllabic word. Physical examination performed when the patient was at rest was essentially normal except for a generalized equal hyperactivity of the tendon responses and numerous carious teeth. There were no abnormalities of the nasopharyngeal structures. Bilateral short cervical ribs revealed by routine chest roentgenography were entirely asymptomatic. Laboratory studies were also within normal limits. A fasting electroencephalogram recorded a dominant 9 to 10 per second rhythm with no abnormal bursts, but with occasional sleepy patterns. There appeared to be no essential differences in the tracings from the two hemispheres, although this information must necessarily be inferential, as only a single channel apparatus was available. A repeat EEG, 4 months after discharge, made under conditions similar to the first, revealed no change, except that no sleepy patterns were observed.

Speech reeducation was begun in the orthodox fashion. Great emphasis was placed upon relaxation, attempts to achieve this state being supplemented by continuous flow tubs and music. At the beginning of treatment group psychotherapy was stressed rather than individual interviews. The patient took an active interest in the group classes, not infrequently volunteering information, although speaking continued to be a very painful experience. Because of the patient's economic status, her earnest desire to secure a self-supporting job as quickly as possible and our inability to help her relax by the usual methods, a trial of electric treatments was begun. There was little change until the fourth treatment, after which improvement in speech was remarkable. She now not only answered questions readily but even initiated conversation and took an active part in group singing. The latter accomplishment was particularly gratifying to her, as she had always enjoyed choral work, had a pleasant voice, but had been too fearful to try lest she stumble over the lyrics. Thirteen treatments were given at 5-day intervals, the last being a petit mal seizure. The improvement following this type seizure was even more dramatic than following the grand mal, the patient being able to speak normally, except for a slight stammer during excitement. It was repeatedly noted during the course of treatment that, following a visit from her family, the stammering which had been negligible before the visit became markedly accentuated.

It was, therefore, decided, following the seventh treatment, to institute intensive psychotherapy and

work out a concrete plan for her subsequent career. It was quickly disclosed that the patient's chief interest lay in the field of nursing from which she felt barred by economic factors. It was also apparent that the mother was definitely handicapping the patient by fostering dependency, as well as by the maternal attitude that the community owed them both a living.

Following the last treatment, the stammering continued to improve, especially when the patient accepted the responsibility of nurse's aide for one bed patient. She did her work well, talked constantly to her patient, consolidated her desire to become a nurse, and generally gained more self-assurance. A nursing aptitude test given by the State Nursing Association revealed that she was poorly qualified for the profession by reason of her limited intelligence and prior training, but well suited according to her total social adjustment, rating very high in sympathy, self control, and loyalty. Therefore, although she was accepted by a reputable nursing school, she decided to accept the full time position of nurse's aide which was offered her and postpone training for another year.

From 3½ months after admission to date (one year later) she has worked faithfully as an aide, almost entirely for mental patients. Toward this group she has never shown any fear, but immeasurable patience and sympathy. Except for short periods when she assumes the responsibility for a particularly difficult patient, her work apparently has no effect on the stammering. When, however, during her weekly visits home she is confronted by her mother with a new family crisis, an exacerbation of the speech defect is immediately precipitated. At these times, if her own efforts plus psychotherapy are not sufficient to help her speech, one or two electric treatments are given. Six treatments have been given in this fashion about every other month, improvement resulting in each case, the improvement again being most spectacular following a petit mal seizure. In addition to their specific action in enabling the patient to speak better, the treatments induce a state of relaxation making her more available to psychotherapy.

During the first course, the treatments never generated fear. Since they have been placed on an intermittent basis, according to need, the patient has felt afraid of them, although recognizing that they are definitely beneficial. She has stated: "It makes me feel relaxed. I seem to be able to take more of an interest in people and can see more things to do. I feel less tired. It makes me think less about myself."

DISCUSSION

The history of this particular case of stammering attests to its basic psychoneurotic cause. It is apparent from a review of the literature that, in the case material of most psychologists and all physicians who treat stammering, the psychogenic factors in the disorder are outstanding (Greene and Small(1), Despert(2), Leary(3), Meyer (4), Maskowitz(5), Rotter(6)). The psychosomatic symptoms and biochemical changes associated with the act of stammering (Greene(1), Hill(7)) mimic so closely similar changes in the nonstuttering psychoneurotics that correlation of the two conditions appears inevitable. Both the psychosomatic symptoms and the stuttering act itself are results, just as these same symptoms are the results rather than the causes of the psychoneurotic's anxiety attack.

There are three factors in the psychiatric history of stammerers which appear so frequently that they can be used as three psychotherapeutic guide posts. First, the lives of these patients appear to be especially controlled by a domineering mother; second, stammerers are more completely repressed than most psychoneurotics; and third, they have usually attained, if only superficially, a satisfactory social adjustment. The last factor is particularly important as this adjustment camouflages the stutterer's deep-seated anxieties, preventing his preceptors from assisting his basic difficulties, because they assume he is "psychologically normal" (Kenyon(8)). It was for this reason particularly that prior attempts by social workers, teachers, and physicians to help our patient were unsuccessful. The first two factors would have been quickly disclosed and appropriate remedial measures could have been more easily applied, had the third factor been recognized 10 years earlier.

If psychogenic factors are the basic ones in stuttering, one wonders why the condition is not more prevalent among the mentally ill generally. Barbara(9) reports an incidence of 0.28% among psychotics, less than that estimated in the general population. In our experience among psychoneurotics of all types, the percentage of stammerers is essentially the same low figure. Perhaps the stammerer discovers early in life that his speech difficulties, like the psychoneurotic's somatic complaints are, if not socially acceptable, at least socially pitiable. He finds, too late, the price he has paid for relief from responsibility and for society's sympathy. The question still remains why one child's fears appear as cardiac or intestinal symptoms, another's as oral difficulties.

The association within the family of another stammerer is probably an important factor. A traumatic incident in childhood, when stammering "saved" the patient is equally important. In our patient, her entry to the County Detention Home where she was questioned in detail regarding her mother's way of life was undoubtedly a determinant. Refusal to talk would have led to reprisals by the authorities; inability to talk was a legitimate excuse for withholding information.

The presence of an organic cerebral defect suggested by the theory of split laterality (Cobb and Cole (10)) and the electroencephalographic changes demonstrated by Freestone(11), Travis and Knott(12), and others are at present too variable to be of assistance in the management of the individual patient. The tracings procured from our patient were of interest to us, but of no particular help. Even had asynchronism between the right and left cerebral hemispheres been demonstrated, management of the case would still not have been changed.

The remarkable immediate improvement in speech after convulsive therapy followed by relapse when situational difficulties became qualitatively and quantitatively greater than the patient's insight, parallels the experience of Lewis(13) and Kalinowsky, Barrera and Horwitz(14), in the treatment of psychoneurotics. Those with anxiety neuroses, the group in which our patient would be classified, are notably poor subjects for electric treatment. Yet, this type of therapy was definitely of benefit here, as a release of inner tension was achieved and the patient became much more amenable to psychotherapy. The appreciably better effects following petit mal compared with grand mal seizures again emphasizes the difference between the psychoneurotic and the psychotic, in the latter the reverse being true.

CONCLUSIONS

1. To illustrate the value of the pluralistic approach to the problem of stammering a case is reported in detail in which psychotherapy, speech training, and electric convulsive therapy were utilized.

2. The dominant psychoneurotic traits were amenable to psychotherapy only after convulsive treatment released the patient's inner tension.

3. Electric convulsive therapy is recommended in the management of severe stammering to shorten the period of treatment and to induce a more suitable atmosphere for both psychotherapy and speech reeducation.

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GROUP PSYCHOTHERAPY IN PATIENTS RECOVERING FROM PSYCHOSES [1]

RALPH W. COLTHARP, Lt. (M.C.) U.S.N.

Group psychotherapy has been used during recent years as an adjunct to other forms of psychotherapy and not to replace other methods, such as analytical or inspirational-repressive therapy. It has been the writer's experience that men, particularly under combat conditions, benefited from informal group discussions of their problems and anxieties with a medical officer or some person in authority present. They were made to feel comfortable, and much release of hostility and catharsis was noted. These men were usually quite surprised to learn that the fellow next to them had the same worries, and was not so different after all. It was learned that there was an improvement of the morale among these groups following these discussions.

Giles Thomas adequately summarized the use of group psychotherapy in 1943. The fundamental theories of group or crowd psychology were noted to be of greatest importance, and these ideas were made applicable to the practice of psychiatry. Dr. J. H. Pratt, of Boston, is credited with founding the method of group psychotherapy and the present development in the Boston Dispensary can be considered an outgrowth of his experience over 30 years. As early as 1905, he established group discussions among tuberculous patients, later to be followed by an application of this method to other diseases such as mental diseases, undernourished children, diabetic and cardiac patients. His method was largely inspirational and repressive, and he maintained what he called a "thought control clinic." It was estimated that 68 percent of the patients attending were helped. Improvement was attributed to loss of self-consciousness through identification with the leader, establishing rapport with the leader, and suggestion to the whole group.

The report of Chappel, Stephano, Rogerson and Pike, who treated a group of patients with peptic ulcer by psychological procedures, is of much significance. They reported favorable results in 31 out of 32 patients after six weeks. Their aims were to control worry, prohibit discussion of condition and symptoms with family and friends, control effort, explain, give self-assurance, suggest, and assure or induce suggestion.

Lazell, at St. Elizabeths, reported the results of group therapy in patients with schizophrenia. His discussions were exceedingly frank and used the analytical viewpoint to explain mental mechanisms. He discussed such subjects as perversion, homosexuality, inferiority, hallucinations, overcompensations, daydreaming and work. Bibliotherapy was also used. He emphasized that other forms of treatment should be used, and reported favorable results.

The Alcoholics Anonymous have learned by discussing their problems mutually to control the alcoholic diathesis. Their success is largely due to inspiration discussions, if we are to accept their reports. Psychiatry might indeed learn from their experiences. Moreno introduced psychodrama as an adjunct to group psychotherapy.

Wender, reporting in 1940, considers the favorable mechanisms operating in group psychotherapy to be intellectualization, patient to patient transference, catharsis and group interaction. He warns against directing the discussion against individuals, but recommends that case histories be used similar to those of the patients, in order that they may assume an objective viewpoint.

Schilder started group psychotherapy at the Bellevue Hospital in 1935, using small groups varying between two and seven. He points out that it is easier to see one's own problems when brought out by another. The patient is given a chance to make his own associations with his experiences when presented in a group. The physician allows others to interpret these, or gives his own

[1] The opinions presented are those of the author and do not represent those of the Medical Department of the United States Navy.

interpretation when he sees fit. Schilder does not allow one individual to monopolize the conversation. Emphasis is placed upon the fact that the human element must be put into each situation which is interpreted and the patients must feel that the physician himself is human. He does not feel the sexes should be mixed for group therapy.

Geraldine Pederson-Krag discusses the unconscious factors in group psychotherapy, and points out that a permissive attitude is developed. It is noted that when an individual becomes a part of a group, the unconscious tends to dominate the conscious, suggestibility increases, suggested ideas become acts, the critical faculty is decreased, and the individual feels stronger motivations.

In a discussion of group psychotherapy in a military setting, Weinberg observed a frank expression, manifestations of transference from member to member and to the leader, and the encountering of resistance. He expressed the opinion that group psychotherapy was no time saver. He used groups of five to seven men who were returnees from combat zones, and care was given to select men of the same intellectual level in the group. Concepts dealt with were the role of the unconscious, somatic responses, guilt reactions, anxiety and dreams. Concepts were discussed as suitable material was produced.

Group psychotherapy was initiated at the United States Public Health Service Hospital, Fort Worth, Texas, partly as a measure of economy of time, and partly because it was the belief of the writer that in group discussions patients could benefit from the experience of others. It was noted that much of both good and bad information was disseminated on the wards during evenings, and it was felt that this could be better directed in a more or less formal discussion with a medical officer. It was instituted as an adjunct to individual therapeutic sessions, occupational therapy and other available methods.

Group Make-Up

All patients used were U. S. Navy officer patients, either active or retired, who were nearing or in a remission from a functional psychosis. They were on an unlocked ward. The size of the group varied from 8 to 17, and the total number participating was 46. The intelligence in this group was superior, as their estimated I.Q. was between 115 and 144. After the initial group meeting, no set routine was followed for admission to or discharge from the group. Patients left the group as they were discharged from the hospital. Attendance was always voluntary, but was always 95 percent of the maximum.

Technique at Sessions

The initial discussion occurred in a small lecture room, and it was explained that it was felt that many of their problems were mutual, and that benefit could be obtained from mutual discussion. They were reassured that these discussions would not preclude personal interviews, and were urged to say anything that they pleased. It was noted that the lecture room atmosphere was not conducive to an unrestrained discussion, and therefore the meetings were transferred to a dayroom on the officer's ward, which was equipped with comfortable chairs and divans, thus creating a pleasant, informal surrounding. Chairs were arranged in a circle and effort was made for the therapist not to be conspicuous. Topics discussed were diversified and generally directed toward a mental hygiene level. They included sex hygiene, religion, alcoholic problems, and mental mechanisms such as suppression, repression, hallucinations, delusions, or any associated topics which could be brought up. Although no schedule of discussion was made, an effort was made to discuss the patient's attitude toward his illness after he left the hospital.

Rôle of the Therapist

Every effort was made not to appear to be the dominating individual in the group, but to assume an interpretive, suggesting rôle, and not to allow more aggressive individuals to dominate the meetings. An effort was made, with success, to induce the human atmosphere from the viewpoint of the therapist. A jovial, good-humored atmosphere was promoted. Questions were frequently asked concerning perversion, sex techniques, etc., which were obviously very personal,

but were handled in a generally detached, impersonal manner.

Observations

1. The most common experience of the patient was his surprise to learn that the fellow next to him had experienced many of the same difficulties, and that not he alone had heard voices accusing him of abnormal sex acts, etc. They learned that their illnesses were not individualized.

2. Lively arguments occasionally ensued between patients as to whether they had been actually ill or not, and to what extent.

3. Patients developed a dependency upon meetings, and if discussions were missed by the therapist, a hurt feeling was noted.

4. Problems could be discussed in an impersonal manner, and therefore were frequently more acceptable than when discussed in private psychotherapeutic interviews.

5. It appears that patients gain insight more rapidly if they can frankly admit that they were mentally ill in a group.

6. A great deal of catharsis was experienced in describing their individual illnesses. Hostility was released regarding the military service and authority in general.

7. It was particularly noticeable that the group as a whole developed an *esprit de corps.*

8. Questions most frequently asked were: (a) What causes mental diseases? (b) What does my diagnosis mean? (c) What should I tell people about my illness? (d) What is shock treatment? (e) What should I do about having children? (f) When can I go home? (g) When can I get liberty? (h) What is wrong with John Doe (someone they had seen)?

9. Questionnaires requesting critical opinions of the group therapy were all favorable. A twenty-seven-year old officer recovering from a severe depression reported:

> Although I do not feel capable of speaking of my own problems in a group just now, and therefore have been able to contribute nothing to the discussions as yet, I feel they are beneficial inasmuch as it leads to the realization that mine aren't the only problems nor am I the only one ever confronted with them. A general realization that things could be worse and that people have solved more difficult problems is helpful too. In the course of the discussions questions are sometimes answered which I realized were troubling me but which it never had occurred to me to ask about—in a way I had sort of taken them for granted. Further, discussion on purely impersonal subjects gives one confidence in one's own opinions and ability to talk.

A twenty-nine-year old officer who was in a near remission from a schizophrenic episode wrote:

> With confidence in the other members of the group and the leader, these discussions have become important to me on a self-help basis.
>
> Also, the informality tends to reassure me that not only other hospitalized patients, but civilians have many problems similar to ours. Since these other people succeeded in overcoming their difficulties, the outlook for our individual cure is much brighter.
>
> I look forward to these group discussions and am happy to be able to expect this chance to 'cherp'.

A forty-nine-year old patient adds:

> Group discussions held at the U.S.P.H.S. Hospital have been very helpful to me. Nearly all subjects that concern mental illness have been explained in such simple words that all could and did get a better understanding of the whole problem.

Summary and Conclusion

The literature concerning group psychotherapy is briefly reviewed. A report of group psychotherapy in a group of officers recovering from functional psychoses is made. Patients' opinions of this method are reported. It is believed that group psychotherapy is especially adaptable to patients of above average intelligence, and can be used as an adjunct to other forms of therapy. It cannot and should not replace other forms of psychotherapy. It has the special advantage of economy of time. Discussions are carried on in an impersonal manner, patients learn that their illnesses are not individualized, and mass catharsis is noted.

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COMMENT

BETHLEM

1247—1547—1947

"To all the children of our Mother holy Church, to whom this present writing shall come, Simon, the Son of Mary, sendeth greeting in our Lord, . . . having special and singular devotion to the Church of the Glorious Virgin at Bethlehem, where the same Virgin brought forth our Savior incarnate, . . . in the Honour and Reverence of the same child, and his most meek mother, and to the exaltation of my most noble Lord, Henry King of England, . . . and to the manifold increase of this City of London, in which I was born; and also for the health of my soul, and the souls of my predecessors and successors, my father, mother, and my friends, I have given, and by this my present charter, here, have confirmed to God, and to the Church of St. Mary of Bethlehem, all my Lands which I have in the Parish of St. Buttolph, without Bishopgate of London, . . . to make there a Priory, . . . to say Divine Service there, . . . and specially to receive there, the Bishop of Bethlehem, Canons, brothers, and messengers of the Church of Bethlehem for evermore, as often as they shall come thither and that a Church or Oratory there shall be builded, . . . that the Order, institution of Priors, etc., to the Bishop of Bethlehem and his successors shall pertain for evermore, . . . and Lord Godfrey, Bishop of Bethlehem, into bodily possession, I have indented and given to his possession all the aforesaid Lands; . . .

"This gift and confirmation of my Deed, and the putting to of my Seal for me and mine heirs, I have steadfastly made strong, the year of our Lord God, 1247, the Wednesday after the Feast of St. Luke the Evangelist."

With these words, and many more, Simon FitzMary, sheriff of London, conveyed to the Bishop of Bethlehem, during the reign of Henry III, that parcel of land with its buildings which began the long history of the institution now known as Bethlem Hospital, which this year celebrated the seven hundredth anniversity of its foundation.

It has been stated that Henry VIII, in his quarrel with the Church of Rome, seized the Monastery which had been the property of the Bishop and Church in the Holy Land. Hack Tuke tells us, however, that this seizure by the Crown was carried out in 1375 during the reign of Edward III. (The "for evermore" of Simon, the Son of Mary, had lasted 128 years.) What Henry VIII did was to grant to the City of London in 1547 a charter authorizing the city to administer the hospital "for the relief of the poor people there, according to the meaning of the foundation of the same, or otherwise as it should please the king for better order to devise."

The date when Bethlem was first used as a hospital for mental patients is uncertain, but it seems clear that it was so used long before the time of Henry VIII. Conditions at the institution having come into question, a Royal Commission was appointed in 1403 to investigate. The report of the Commission stated that six men of unsound mind were confined there. This appears to be the earliest definite evidence of mental patients in Bethlem Hospital. That the treatment methods then in vogue had been duly provided was indicated by the further mention in the report of "Six chains of iron, with six locks; four pairs of manacles of iron, and two pairs of stocks."

Tuke, who investigated the early history of Bethlem, points out that there existed two small hospitals to which he is inclined to "grant their priority as special houses for deranged persons." One of these was founded in the parish of Barking (1370) "for the sustentation of poor Priests and other men and women that were sick of the Phrenzie"; the other was at Charing Cross. The records show, however, that the latter belonged to Bethlem Hospital, being relinquished in 1830 to permit the development of Trafalgar

Square and the erection of the National Gallery. "We know, then," Tuke concludes "that from about 1400—probably earlier—Bethlem received lunatics, on however small a scale; and we have here an explanation of the fact which has occasioned surprise, that before the time of the charter of Henry VIII, whose name is inscribed over the pediment of the existing building, the word 'Bedlam' is used for a madman or mad-house."

The original Bethlem Hospital, although somewhat enlarged from time to time, had proved entirely inadequate and a new hospital with capacity for 150 patients was opened in Moorfields in 1676. This second Bethlem was an imposing structure and is said to have excited the ire of Louis XIV because it was planned after the Tuileries. "It certainly conveys ideas of grandeur," records Smith's "Ancient Topography of London." "Indeed, it was for many years the only building which looked like a palace in London." In this building for the first time male and female patients were segregated.

It is significant of the public attitude of the seventeenth century that surmounting the pillars at the gateway to the hospital grounds were two stone figures, one representing raving madness, the other melancholy, carved by the sculptor Caius Cibber, father of Colley Cibber, the actor. These effigies, so singularly out of place, later found more suitable lodgment in the South Kensington Museum.

By the end of the eighteenth century the hospital in Moorfields had outlived its usefulness, and the third Bethlem was opened in St. George's Fields in 1815, designed for 200 patients.

The fourth and present Bethlem Hospital, favorably located in Monks Orchard, ten miles from Charing Cross, and having accommodation for 250 patients, was opened in 1930.

To the literary minded the word Bethlem, or Bedlam, will recall "Poor Tom" of King Lear; the art devotee will think at once of the "Rake's Progress"; the medical historian will remind us that John Haslam, appointed resident apothecary to the institution in 1795, published the earliest report of a case of dementia paralytica (1799).

For five and a half centuries mental patients have had admission to Bethlem Hospital. The long history reflects the changing views of both the medical profession and society at large as to the nature of mental disorder, the status of the mental patient, and methods for his management and treatment. It was not until 1632, according to Tuke, that first mention is made of a medical man at the head of the institution, although one John Arundell, "more priest than physician," the *British Medical Journal* says, was associated with the hospital in the fifteenth century. Most important of the early medical heads was Edward Tyson, who was physician to Bethlem from 1684 to 1703. With him the reforms in the care and treatment of patients really began—and this, 100 years before the innovations of Pinel and Tuke, who are commonly thought of as standing at the threshold of the modern period of hospital care. For a century and a quarter (1728-1853) four generations of the Munro family dominated the scene, the headship of the hospital passing from father to son. The second and third Munros both had to do with the treatment of King George III.

Many distinguished names in British psychiatry have been associated with this venerable institution, in its fourth edition a thoroughly modern hospital which has become one of the world centers for postgraduate training. Compared with its career of centuries, the hospitals of the western world are as of yesterday.

CALIFORNIA CRIME STUDY COMMISSIONS

Pursuant to an act of the California legislature, approved July 8, 1947, Governor Earl Warren, by executive order dated November 1, 1947, created 5 special crime study commissions. These commissions, each consisting of 5 persons, are to study, respectively, criminal law and procedure; adult corrections and release procedure; juvenile justice; organized crime; and social and economic causes contributing to crime and de-

linquency in California. The final reports of the studies, with recommendations, are to be completed not later than July 1, 1949.

In launching this program the Governor held a 2-day conference on crime and juvenile justice at Sacramento on November 17 and 18, to which were invited representatives of the judiciary, law enforcement officials, education, and representatives of official and voluntary agencies that minister to the social needs of California communities. More than 1,000 persons accepted the Governor's invitation to attend and participate in the discussions pertinent to the respective commissions' interests.

Each commission is expected to pursue its studies in more or less autonomous fashion, the final results being coordinated by the State Department of Correction for eventual submission to the Governor and the legislature.

The Governor's long experience as a prosecuting attorney has stimulated his interest for the development of a more satisfactory program for dealing with crime and juvenile justice in California. The great increase in population since 1940 has also stimulated the need for taking inventory of the crime situation within the state and the formulation of more adequate measures for dealing with potential needs in this field.

W. L. T.

NOTICE

Hotel accommodations for the Washington meeting of The American Psychiatric Association (May 17-20, 1948) are to be made through the offices of the Association, Room 924, 9 Rockefeller Plaza, New York 20. While the Statler Hotel will be the headquarters, it will have only a limited number of rooms available. Therefore, most members will have to be assigned to other hotels nearby. Ample guarantees on rooms have been made so that everyone will be comfortably housed. However, the attendance will be large, so please do not delay in notifying the office of the Association of your needs and the length of your stay.

NEWS AND NOTES

NATIONAL ADVISORY MENTAL HEALTH COUNCIL.—Among the recommendations made by the National Advisory Mental Health Council at its meeting in Washington in November, in order to augment the present program of the United States Public Health Service authorized under the Mental Health Act, which provides for training grants and stipends to universities, hospitals, and clinics to train graduate students in psychiatry, clinical psychology, psychiatric social work, and psychiatric nursing, were the following suggestions.

1. Emphasis should be placed first on the improvement and then the expansion of existing training programs, with the establishment of new training facilities taking third place.

2. Applicants for training stipends in the four specialty fields who plan to follow careers of public service, research, or teaching should be given preference.

3. Scholarships should be awarded to senior medical students in Class A medical schools who wish to specialize in psychiatry.

4. When possible, grants should be awarded to Class A medical schools for the development and stimulation of psychiatric teaching at the undergraduate level, but under certain conditions.

5. Grants and stipends for training in clinical psychology should be given only to those institutions which offer doctorate or post-doctorate training programs in clinical psychology.

6. Grants should be awarded to institutions offering an accredited 2-year social work course, in order that they may develop a psychiatric social work curriculum, and also to accredited one-year schools under certain conditions. Training stipends should not be awarded to students in the first year of graduate social work training.

7. Support for training in psychiatric nursing should continue to be given only at the head-nurse level and above.

The Council appointed chairmen for three groups which serve the Council in an advisory capacity: Dr. William Malamud to the Committee on Training, Dr. S. Alan Challman to the Committee on Community Services, and Dr. Nolan D. C. Lewis to the Research Study Section.

Applications for training grants should be sent to the Training and Standards Section, Mental Hygiene Division, U.S.P.H.S., Washington 25, D. C., and for research grants to the Research Projects Director, Mental Hygiene Division.

NATIONAL COMMITTEE FOR MENTAL HYGIENE, 1947 ANNUAL MEETING.—On November 12 and 13, 1947, the National Committee for Mental Hygiene held its regular annual business meeting and scientific conference, in New York City. The meeting was concerned with the major issue facing the world at the present time, that is, preparing for world citizenship, and took its lead from the preamble of UNESCO indicating that the minds of men are the essential focus in developing world citizenship.

The first day dealt with the shorter perspective, the forces that mold the minds of individuals. Those of the home were discussed by Dr. Milton J. E. Senn; those to be found in the schools, by Dr. Daniel A. Prescott; and those emanating from the job were analyzed by Dr. F. W. Dershimer.

A special session in the afternoon considered the forces in the church; this reflected a conference held in Washington in the spring of 1947, of some 15 psychiatrists and 15 clergymen. In this conference both groups recognized that they were participating in a division of labor and that an understanding of the whole labor is necessary for the participants in the partnership to work effectively.

The second day dealt with the longer perspective. Dr. Sol W. Ginsburg gave a picture of the extent of the problem as reflected by the responses of the readers of an advice column and articles on personal problems. Dr. Frank Fremont-Smith pointed out some of the fundamentals of human behavior that are concerned with democratic citizenship, and Dr. Kenneth Clark inter-

preted the tensions between groups that have to be taken into account in a world citizenship that extends over various cultures.

In the afternoon, the program of the International Committee for Mental Hygiene was described and interpreted by Dr. J. E. Meakins and a plea presented to the audience to take part in the preparatory commissions upon which the program of the International Congress in London in August, 1948, will be based. The World Health Organization at present is a projected rather than an accomplished reality. All that we have to go on today is the charter as it has been set up. The mental hygiene potentialities have not yet been accepted or even formulated. Dr. Harry Stack Sullivan, taking advantage of the freedom offered by this charter, outlined work that could be done under it.

The annual luncheon of the National Committee held on the second day included a tribute to Dr. James S. Plant by Mr. A. L. van Ameringen and the presentation of the Lasker Award. The main speaker of the luncheon, Dr. Alan Gregg, pointed to the responsibility of every person for the successes and failures of government in the mental hygiene field.

At the business meeting of the National Committee a new Board of Directors and a new Council were elected, as provided for in recently revised by-laws. The Board of Directors will be composed of 15 persons largely from the New York area who can be fairly regular in attending Board meetings. The Council is composed of 51 members, comparable to Board members, but so situated as to be unable for the most part to attend regularly. The members of the Council will, however, be eligible to attend all board meetings and will receive the agenda in advance and the minutes of such meetings subsequently and will serve essentially as Board members through correspondence.

WINNERS OF 1947 LASKER AWARD.—Presentation of the 1947 Lasker Award for outstanding service to the nation's mental health, given this year for "contributions to popular adult education in mental health, especially concerning parent-child relationships," was made on November 13 at the 38th annual meeting of the National Committee for Mental Hygiene in New York. Lawrence K. Frank, director of the Caroline Zachery Institute of Human Development, New York City, and Catherine Mackenzie, parent-child editor of the New York Times, will share the fourth annual Lasker Award of $1,000.

Miss Mackenzie is cited for her writings in the New York Times and elsewhere and for "her continuous and effective campaign of education on the care and emotional development of children." "By her ability to synthesize and integrate where differences of opinion exist, Miss Mackenzie has won the confidence of the press and the mental health profession," Dr. George S. Stevenson, the Committee's medical director, commented. Her column is posted in schools and social agencies and is often assigned as required reading in university classes.

Mr. Frank is honored for a variety of activities in this field covering 26 years, "for his impetus and direction to the entire field of child development, parent-child relationships, and adult education." At the Caroline Zachery Institute he directs lecture courses, research, and the establishment of fellowships, and supervises field work covering all aspects of child development from infancy to vocational guidance. He is a prolific writer on the subject; one of his widely read pamphlets, "Fundamental Needs of the Child," has been translated into many languages and thousands of copies have been distributed.

THE SALMON MEMORIAL LECTURES, 1947.—Dr. Harold Dwight Lasswell, internationally known political scientist and Professor of Law at Yale University, was presented by the Salmon Committee on Psychiatry and Mental Hygiene at the New York Academy of Medicine, November 12-14, 1947, in three lectures, soon to be published, on the dynamics of power and personality.

Defining power in terms of interpersonal relations and of those deprivations to individuals and groups which are expected to follow the breach of a pattern of power, Dr. Lasswell emphasized the importance of developmental and environmental forces in the shaping of power-seeking personalities. Such personalities accentuate the value of power in relation to other values in the social process and pursue power as a compensation against lowly images of the self.

Since those who hold power do so only

so long as there is a continuing stream of empowering responses, the importance of choosing and supporting, as well as of rearing, leaders who can protect and perfect the values and institutions of democracy is obvious. It is a problem equivalent to the development of *social health,* by the diffusion of the kind of knowledge and education which will enable men to make rational choices of leaders in the defense and perfection of a free society. Hence, social psychiatry and other "policy sciences" such as law, education, and the social disciplines at large can contribute effectively to its solution. Dr. Lasswell favors a concerted scientific effort, on the widest possible scale, to clarify the impact of institutions on the formation of character and personality, with a view to developing new instruments of democratic education.

Since the accentuation of power is a modality of compensation against estimates of the self as unworthy and unloved, personalities fit to participate in the democratization of society must love themselves enough to love all. Effort must therefore be directed to the discovery of ways of handling children which would, in fact, aid in the formation of democratic character, transmit democratic principles, and foster the acquisition of democratic skills. For, although the world community today is adept in pursuing the pathways of danger, it is inadequately oriented to those which, implementing the value-shaping and value-sharing potentialities of a truly democratic commonwealth, should lead to lasting peace.

ASSOCIATION FOR RESEARCH IN NERVOUS AND MENTAL DISEASE.—At the December meeting of the Association in New York the following officers were elected for the coming year:

President: Dr. Henry Woltman of the Mayo Clinic.
Vice-President: Dr. Roland H. Mackay of Chicago.
Second Vice-President: Dr. Houston Merritt of Montefiori Hospital, N. Y.
Secretary-Treasurer: Dr. Clarence C. Hare of the N. Y. Neurological Institute.
Assistant Secretary: Dr. Rollo J. Masselink.

DR. NORMAN CAMERON APPOINTED PROFESSOR OF PSYCHIATRY.—The University of Wisconsin Medical School has appointed Dr. Norman Cameron professor of psychiatry. He will introduce required work in medical psychology and psychopathology for first and second-year medical students.

Dr. Cameron has long been connected with the University of Wisconsin faculty, having served as assistant professor of psychology for several years before taking his medical degree. He has also been attached to the departments of psychology and psychiatry at Cornell Medical College and to the department of psychiatry in the School of Medicine, Johns Hopkins University.

VETERANS ON DISABILITY COMPENSATION ROLLS.—The Veterans Administration announces that on June 30, 1947, there were 1,728,516 World War II veterans on disability compensation rolls. Of these, 71% were for disabilities resulting from general medical and surgical cases; 27.5% were neuropsychiatric cases; and the remaining 1.5% were tuberculosis cases. In the neuropsychiatric category, functional disorders of the nervous system were the reasons for nearly two-thirds of all the cases. Psychiatric disorders and organic disorders of the nervous system make up the other third, in about equal proportions.

AMERICAN GROUP THERAPY ASSOCIATION.—The 1948 annual meeting of the American Group Therapy Association will be held at the Hotel Commodore in New York City on April 11. The program will include a luncheon session followed by a case presentation and discussion, and also an evening session devoted to reports and explanation of current practices and trends in group therapy. A copy of the preliminary program and further information may be obtained by writing to the office of the Association, 228 East 19th St., New York 3, N. Y.

PRESENTATION OF A STATUE OF SIGMUND FREUD.—To the New York Psychoanalytic Society and Institute there was presented on November 12, 1947, a statue of Sigmund Freud. This was the work of the sculptor, Olem Nemon, and given by an anonymous Belgian in recognition of a debt of gratitude to the United States and to Freud. At the unveiling ceremonies, Dr. Sandor Lorand

was chairman, and two addresses were given. Dr. A. A. Brill spoke on "Freud in America," and Dr. Paul Federn on "Freud amongst Us —His Followers."

The New York Psychoanalytic Institute has a faculty of 50 physicians and a student body of about 150. It will soon open a treatment center and is now expanding its teaching courses.

AMERICAN ASSOCIATION ON MENTAL DEFICIENCY.—The 1948 annual meeting of this association will be held in Boston at the Copley Plaza, May 18 to 22, instead of the hotel and dates that were announced in the August JOURNAL. This meeting will commemorate the hundredth anniversary of the first school for mental defectives in this country and it will be the first international congress on mental deficiency.

STONY LODGE APPROVED FOR RESIDENCY TRAINING.—The Stony Lodge Sanitarium at Ossining, N. Y., has recently been approved for psychiatric residency training. There are two openings available at this time; these are best suited to men who have had two years of experience in state hospitals, Army, Navy, or Veterans Hospitals and who would want to complete their third year of required training for the American Board of Neurology and Psychiatry.

The program at Stony Lodge includes intensive psychotherapy as well as insulin and electroshock therapy. Inquiries may be made directly to the physician-in-charge, Dr. Bernard C. Glueck, Jr., Stony Lodge, Ossining, N. Y.

JOB INFORMATION SERVICE FOR PSYCHIATRIC SOCIAL WORKERS.—With the cooperation of the National Committee for Mental Hygiene a plan has been formulated for the establishment of a job information service, to be undertaken by the American Association of Psychiatric Social Workers. It is felt that the apparent shortage of personnel is due in part to the fact that there has been no nation-wide system for bringing clinical job openings to the attention of qualified personnel. A monthly bulletin, which will be distributed to members of the A.A.P.S.W., will list all psychiatric social work positions that come to the Association's attention. Those who wish to list positions available should write for the appropriate forms and for information about fees to the American Association of Psychiatric Social Workers, 1790 Broadway, New York 19, N. Y.

IN HONOR OF DR. STRANSKY'S SEVENTIETH BIRTHDAY.—To pay tribute to Professor Erwin Stransky of the University of Vienna, whose seventieth birthday occurred on July 3, 1947, his friend and colleague, Dr. Josef K. Waldschütz, has kindly supplied some of the more significant features of the career of this distinguished scientist who has had so much to do with the development of psychiatry in his native country.

Dr. Stransky received his Doctor's degree from the University of Vienna at the exceptionally early age of 22. He was for many years assistant to Professor Wagner-Jauregg, and among his other great teachers were Obersteiner and Frankl-Hochwart. At the age of 37 he became associate professor of neurology and psychiatry in the University of Vienna. He served at the Front as medical officer in the Austrian army during World War I.

Following Hitler's invasion of Austria in 1938, Professor Stransky, because of "non-Aryan descent," was deprived of all his official connections and rights. His dwelling was in the line of fire of the Russians on one side and their western allies on the other but miraculously escaped. He and his wife, however, were subjected to extreme hardship, and it was through the self-sacrificing efforts of Mrs. Stransky and a few devoted friends that Dr. Stransky's transportation was prevented.

It is a pleasure to record that following the collapse of the Hitler regime he was able to resume his scientific and humanitarian work. In the spring of 1945 he was appointed chief of the Vienna Neurological Clinic Rosenhügel and by his personal efforts built up again this institution from a bombed-out ruin to one of the important neurological centers of Europe. Early in 1946 he was given the title of full professor in the Universtiy of Vienna, and on attaining his seventieth birthday was appointed professor emeritus.

Professor Stransky's bibliography includes more than 200 original studies. His textbook,

Introduction to Mental Hygiene, was one of the earliest treatises on the subject.

Dr. Stransky has been an Honorary Member of The American Psychiatric Association since 1933. The JOURNAL would like to add its word of appreciation and tribute to those of his colleagues and friends and to those of the academic and civil authorities who paid honor to him on the occasion of his seventieth birthday.

RESOLUTION RELATING TO "HOFHEIMER PRIZE"

WHEREAS, The Estate of Lester N. Hofheimer, deceased, proposes a donation or contribution of $25,000 to The American Psychiatric Association for the purpose of providing an annual award for outstanding contribution of a research nature in the field of psychiatry or mental hygiene; and

WHEREAS, The Council of the Association recommended the acceptance of said special fund, and approved the following form of resolution submitted to the Association for adoption at its annual meeting, held at New York, New York, on May 21, 1947, the said resolution reading as follows:

Be It Resolved, That there shall be and hereby is created a Group to be known as the Hofheimer Prize Board, consisting of eight Fellows and Members of The American Psychiatric Association, to be appointed by the President. The President of the Association shall serve as a member of the Board during his term of office, or if he be already a member of the Board, the President-Elect shall serve ex-officio as a member of the Board. The original Board members shall serve continuously for three years, after which the first two-named appointees shall retire and shall be replaced by two other Fellows or Members of the Association to serve a four-year term in their place and stead. The Board shall annually nominate three Fellows or Members from whom the Council shall select two; thus two members shall retire annually; and their successors be appointed for a term of four years, except as herein-above provided. The retiring members of the Board shall be ineligible for re-election for one year immediately following their retirement. Vacancies caused by death or resignation shall be filled by the Board in line with the procedure herein prescribed; and the President of The American Psychiatric Association will give notification of the names of the proposed new members to the three persons now serving as Executors of the Estate of Lester N. Hofheimer, deceased, or to the surviving or substituted Executors of said estate; and

Be It Further Resolved, That the Hofheimer Prize Board shall award each year at the annual meeting of the American Psychiatric Association a prize award to be known as the "Hofheimer Prize," in the amount of $1,500, to a citizen of the United States or Canada, not over forty years old at the time of his publication, or submission for publication, of an outstanding contribution of a research nature in the field of psychiatry or mental hygiene. The award shall apply only to work published within a period of three years prior to the date of the award. The award may be made to each member of a group, instead of to an individual, provided that the majority of the group are citizens of the United States or Canada, and that the median age of the group did not exceed forty years at the time of publication. Such annual award of $1,500 shall be equally divided among the members of the group. Each recipient or recipients, in the case of a group award, shall receive a certificate (the expense for which shall be paid from the fund) indicating that the "Hofheimer Prize" has been made possible under terms of the Will of Lieutenant Lester N. Hofheimer, deceased. The award shall not be confined to Fellows or other members of the American Psychiatric Association. The Board may, in its discretion, omit the prize award for any one year, but the making of the award shall not be omitted for any two successive years; and

Be It Further Resolved, That the $25,000 shall be placed in a separate fund and invested in United States Government securities or deposited in New York State savings banks, and all income therefrom shall be added to the principal of such fund; and, whenever at any time the remaining portion of the fund, including the income therefrom, shall become less than $1,500, the said balance shall revert to the general funds of The American Psychiatric Association.

Now, Therefore, The American Psychiatric Association at its annual meeting for 1947 agrees to accept, and does hereby accept, said donation or contribution of $25,000, and adopts the aforesaid resolution as the formal act of the Association this 21st day of May, 1947.

SAMUEL W. HAMILTON,
President.

Attest:
LEO H. BARTEMEIER
Secretary.

The President appointed the following Fellows of The American Psychiatric Association to serve as the Hofheimer Prize Board: Dr. Franz Alexander, Dr. Harry C. Solomon, Dr. George E. Daniels, Dr. Thomas A. C. Rennie, Dr. David Levy, Dr. George S. Stevenson, Dr. John C. Whitehorn, and Dr. Nolan D. C. Lewis.

THE AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC.

The following were certified at Chicago, Illinois, October 27-28, 1947.

PSYCHIATRY

(By Examination)

Ackerman, Albert, 2810 O St., S. E., Washington 20, D. C.
Adelson, Edward T., 201 Keer Ave., Newark 8, N. J.
Ault, Charles Carter, Vets. Admin. Hosp., Little Rock, Ark.
*Barnard, Ruth I., Menninger Clinic, Topeka, Kansas.
Bennett, Edward R., Halloran Veterans Hospital, Staten Island, N. Y.
Bergman, Murray, Newark State School, Wayne County, Newark, N. J.
Binder, Morris, Veterans Hospital, Northport, New York.
Braverman, Aaron Harry, Veterans Administration Hospital, Bedford, Mass.
Bryan, Elizabeth Lynn, Brooklyn Regional Office—Vet. Admin. 35 Ryerson St., N. Y.
Byrnes, Allen W., Box 157 Richland, Michigan.
Carotenuto, Ralph J., 380 Sterling Place, Broklyn 17, New York.
Center, Abraham H., 17-A West Gordon Street, Savannah, Georgia.
Chaplik, Michael, 51 E. 73rd Street, New York 21, New York.
Cohen, Newman, 475 Commonwealth Avenue, Boston 15, Mass.
D'Angelo, Ernani, 90-26 150th St., Jamaica, New York.
Doering, John A., Delaware State Hospital, Farnhurst, Delaware.
Dorsey, John Morris, 3743 Brush St., Detroit, Michigan.
Dredge, Thomas Joseph, Greystone Park, New Jersey.
Durante, Raphael H., 1930 Snyder Avenue, Philadelphia 45, Penna.
Eichert, Arnold H., Springfield State Hospital, Sykesville, Md.
Faguet, Benjamin B., 378 Golden Gate Ave., San Francisco 2, Calif.
Ferber, David M. 2744 Bedford Ave., Brooklyn 10, New York.
Foltz, Louis M., 812 Heyburn Building, Louisville 2, Kentucky.
Fox, Thomas Holland, Fort Mead, South Dakota.
Gallagher, William Hanna, Traverse City State Hospital, Traverse City, Michigan.
Gardiner, Harry M., Box A, Harding, Mass.
Goldfarb, Simon L., Vet. Admin., Mental Hygiene Clinic, 95 Pearl St., Hartford 4, Connecticut.
Goldfarb, Walter, 105 West 55th Street, New York 19, New York.
Grassi, Michael O. A., 731 North 63rd St., Philadelphia, Penna.
Green, Sydney H., 115 Edison St., Corte Madera, California
Greenbaum, Philip Samuel, 2839 East 2nd Street, Tucson, Arizona.
Hall, William Stone, S. C. State Hospital, Columbia, South Carolina.
Holden, Isidore, Wadsworth Vet. Admin. Hosp., Los Angeles, California.
Holder, Charles O., Box A, Kalamazoo, Michigan.
Holmes, Mansell B., Vet. Admin. Hosp., Tucaloosa, Alabama.
Imburgia, Frank J., 6826 Greenleaf Street, Parma Heights, Ohio.
Jahrreiss, Walter O., 3703 Clark's Lane, Baltimore 15, Maryland.
Johnson, Simon Overton, Supt., Lakin State Hosp., Lakin, West Virginia.
Jones, Ernest Frederick, Vet. Admin. Hosp., Marion, Indiana.
Kaplan, Louis, 2102 Delancey Place, Philadelphia 3, Penna.
Karlen, Saul Howard, 51 East 73rd Street, New York 21, New York.
Kelley, Kenneth M., 2015 43rd Ave., San Francisco, California.
Longan, Robert Coleman, Jr., 810 West Franklin Street, Richmond, Virginia.
Lyons, William H., 611 Kales Bldg., 76 W. Adams, Detroit 26, Michigan.
Marcovitch, Joseph, Vet. Admin. Hosp., Marion, Indiana.
McKendree, Oswald John, 1213 Court Street, Utica, New York.
McLendon, Sol Brown, S. C. State Hospital, Columbia, S. C.
Miller, Edward Ray, 8350 Wilshire Boulevard, Beverly Hills, Calif.
Morgan, John D'Arcy, Vet. Admin., American Lake, Washington.
Murphy, James M., Willard State Hospital, Willard, New York.
Neustadt, Elsie S., 27 Avon Way, Quincy 69, Massachusetts.
O'Connell, John Joseph, 197 Fourth Avenue, Ottawa, Canada.
Odenwald, Robert P., 53 Park Place, Suffern, New York.
O'Gorman, William D., 1104 City National Bank Building, Omaha, Neb.
Olsen, Albert Lamoin, Vet. Hosp., Fort Custer, Michigan.
Perrin, Hellen Joyce, 1117 Equitable Bldg., Des Moines, Iowa.
Primakow, Max J., Vet. Admin. Center, Wood, Wisconsin.
Prudhomme, Charles, 1752 17th Street, N. W., Washington, D. C.
Rayburn, Charles R., Central State Hospital, Norman, Oklahoma.
Salan, Irving, Rockland State Hospital, Orangeburg, New York.
Schlan, Louis, 25 E. Washington St., Chicago 2, Illinois.
Shelton, Henry Z., Rockland State Hospital, Orangeburg, New York.
Sloan, Roy C. 1220½ Texas Avenue, Lubbock, Texas.
Stephens, Willie Mary, 55 E. Washington, Chicago, Illinois.
Toll, Nina, Connecticut State Hospital, Middletown, Conn.
Vallee, Clarence A., Batavia Vetterans Hosp., Batavia, New York
Wagner, Robert Lowell—Cdr(MC) USN, U. S. Naval Hospital, Long Beach, California.
Wayne, David Michael, Box 161, Fort Mead, South Dakota.
Weber, Joheph E., 238 W. Wisconsin Avenue, Milwaukee 3, Wis.
Wenger, Paul, Bedford V. A. Hospital, Bedford, Mass.
Wilkin, Mabel G., 9 Poe Rd., Woodhaven, Bethesda 14, Maryland.
*Winkler, Emil Guenther, 2421 27th St., Long Island, New York.
Winn, Joseph A., 405 East 72nd Street, New York 21, New York.
Worthington, Robert L., Menninger Sanitarium, Topeka, Kansas.
Yood, Bernard, 481 Beacon St., Boston, Mass.

* Denotes Complementary certification.

PSYCHIATRY

(On Record)

Trevisano, Anthony, Veterans Administration, Castle Point, New York.

NEUROLOGY

(By Examination)

Burrows, Ernest A., 116 Waterman Street, Providence, R. I.
*Epstein, Carl M., The Menninger Foundation, Topeka, Kansas.
*Futterman, Samuel, Vet. Admin., 1031 So. Broadway, Los Aangeles 15, Calif.
Magladery, John William, Johns Hopkins Hospital, Baltimore, Maryland.
Roberts, Lewis Alan, Bellevue Psychiatric Hosp., New York, New York.
Taeffner, John Hallman, 6342 Carnation St., Philadelphia 44, Pa.
Weaver, Samuel Wood, 1205 No. Broadway, Santa Ana, California.

NEUROLOGY AND PSYCHIATRY

(By Examination)

Osborne, Raymond L., 140 East 54th St., New York 22, New York.
Simon, John Leopold, 15 East 75th Street, New York 21, New York.
Steinberg, Miguel, 240 Central Park South, New York 19, New York.

* Denotes Complementary certification.

BOOK REVIEWS

THE SECOND FORTY YEARS. By *Edward J. Stieglitz, M.D.* Philadelphia and New York: J. B. Lippincott Company, 1946. Foreword by Anton J. Carlson, A. M., Ph. D., LL. D., M. D., Sc. D.

A laudatory foreword by Anton Carlson suggests that the book is well worth reading. This viewpoint is borne out as one goes through the book, and in general it can be said that the book is packed with a wide variety of information, that it is interestingly written, and that most of it can be understood by the average reader. The author has read widely on the subject; he has assembled his facts in an interesting manner; and the reviewer would agree with Carlson that "it is a MUST book for all men and women past forty."

The author starts out with a discussion of what one means by aging or growing old, and shows how aging is something that starts from the time of birth and goes on until the time of death. The popular fallacies and misunderstandings with regard to the aging process are discussed. The reader is told that much that happens in the second 40 years of life is dependent upon what happened during the first 40 years and that it is possible, within limits, to control conditions. The author gives proper emphasis to heredity, physical disease, and psychological factors (such as emotional tension) as factors which influence the aging process. There are chapters on "Life With a Handicapped Heart"; "High Blood Pressure"; "Nutrition in Later Years"; "Sex and Age"; "The Question of Cancer"; and "The Point of View." Many worthwhile constructive suggestions are made, and in general the reader is given good advice and many of his fears are dissipated.

The reviewer finds only two places where he would make any specific criticism. In the discussion of rest and fatigue, the author does not seem to take into account some of the latest work which indicates that chronic invalidism is frequently avoided by rapidly getting patients up and about. There is constant insistence that the individual must take a long period of rest after any sickness. According to the author's claim, "for each five years that we have lived, we require an additional day for an equivalent extent of postinfection rehabilitation." He concludes, therefore, that a man at sixty requires 12 days to accomplish the same degree of repair that a child of five requires. Taken literally it would seem that this advice would prolong convalescence unduly in many of our older persons.

The discussion of mental disease in senility is in many respects good, but the attempt to differentiate arteriosclerotic dementia from senile dementia on the grounds that the arteriosclerotic has a "very definite tendency towards the development of paranoid attitudes and delusions of persecution," and the statement that the arteriosclerotic tends to turn against those nearest and dearest to him do not seem to be an adequate differentiation. These, however, are very minor criticisms in what is an excellent book. It is recommended that all psychiatrists should familiarize themselves with this book and that it should be prescribed freely for older patients to read.

KARL M. BOWMAN, M. D.,
San Francisco.

INTRODUCTION À LA CRIMINOLOGIE. By *Etienne de Greef.* (Brussels: Vandenplas, 1946.)

The author is professor in l'Ecole des Sciences Criminelles de Louvain and a disciple of Louis Vervaeck. This volume was finished in 1944 and is a second edition, the first having appeared in 1937. In essence the book is a sociological analysis and interpretation of the factors conducing to and supporting criminal behavior.

Prof. de Greef considers first the usual sociological factors: illiteracy, economic (wage or income level), social change, alcoholism, divorce, the press, the cinema, and seasonal (in terms of both cold-warm rhythm and more obscure meteorological conditions). He then discusses what he terms "le milieu inéluctable": geographic factors, as locality, city, housing; and familial relationships with special reference to harmonious vs. disharmonious. In all of this there is no radical departure from the conventional viewpoint, *i.e.*, that socio-economic factors are all important, are all effective mechanisms in the setting up of the potentially criminal behavioral situation. If anything, de Greef seems to feel that the far more personal family-circle picture is a prepotent factor.

The discussion of deliquency in the "milieu choisi" is well done, since de Greef deals with the world that the delinquent creates for himself—as an escape—or that is created for him—by other delinquents or by the alluring pictures of fiction and the cinema. The "world of choice" is the dream-world where the delinquent is freed of all his bonds, as it were: bonds of family or social restraint, bonds of personal inadequacy, bonds of conventional restriction, and so on.

The chapter on the anatomico-physiological "personality" of the criminal is out of date. Lombroso, Vervaeck, Kretschmer, and a few others are given as authorities. The old concept of "stigmata" is at least tacitly approved, in references to types of ear, nose, mouth, and so on. Recent studies by Goring, Hooton, Sheldon, and others are either not cited or mentioned only in passing.

This book does not pretend to cover any phase of the field of scientific crime detection. It is simply a discussion, and a not very up-to-date one at that, of criminology as a sociological phenomenon.

W. M. KROGMAN,
University of Pennsylvania.

THE BIOLOGY OF SCHIZOPHRENIA. By *Roy G. Hoskins, M.D.* (New York: W. W. Norton & Company, Inc., 1946.)

This monograph, which represents the Salmon Lectures of 1945, is already familiar to most readers of psychiatric literature. The previous 12 annual series of lectures were delivered by psychiatrists; it is refreshing and stimulating to have the approach and thoughts of a physiologist in the biology of such a common failure of nature as occurs in schizophrenia.

Immaturity is emphasized in the genesis of the schizophrenic person. It is stated, "Organic heredity and social heredity play intermingled and often indistinguishable roles in the determination of the characteristics of the maturing individual."

The author summarizes briefly his experience of 18 years of research into the psychosomatic aspects of schizophrenia, including the endocrine relationships. The prevalence in the schizophrenic syndrome of general lassitude, low blood pressure, reduced oxygen assimilation, mild anemia, abnormal metabolism, unusual physicochemical findings, and sluggishness of sympathetic responses is related to inner tension, which of course has deeper meanings.

Defective homeostatic equilibria are often determined by attitudes, a factor which has heretofore been neglected. The author could give us much more about this correlation in his "Biological Appraisal of Schizophrenia." He himself is not completely satisfied with his thesis of "immaturity," and refers to alternative possibilities, such as a specific pathology which might lead to "decompensation"; indeed reference is made to "decompensated neurosis."

The author urges that future research approaches should include, first of all, "an adequate appraisal of the value of the various therapeutic modalities that are now in vogue. Aside from a certain amount of inadequate evidence regarding the value of the shock therapies we know practically nothing in a decently quantitative way as to the value of any. Indeed, we do not even know how good psychiatry is for the psychotics. And while faith is an admirable human attribute, it is not an adequate basis for therapy."

There are important challenges to psychiatrists with which every student of psychiatry should be acquainted. Too little is known about this very core of hospital psychiatry. These challenges of the author are wholesome and stimulating.

RILEY H. GUTHRIE, M. D.,
Norwich State Hospital,
Norwich, Conn.

MONGOLISM AND CRETINISM: A STUDY OF THE CLINICAL MANIFESTATIONS AND THE GENERAL PATHOLOGY OF PITUITARY AND THYROID DEFICIENCY. By *Clemens E. Benda, M.D.* (New York: Grune & Stratton, 1946.)

This monograph is the result of 10 years of research on so-called mongolism. The author discusses cretinism parallel with the main subject as a means of contrasting a condition poorly understood with one the nature of which is better known. The problem of mongolism is an eminently practical one. Statistically one might expect 2.3 mongoloids per each thousand of newborn infants. The cardinal conclusion reached by the author is that mongolism is a disturbance of visceral, somatic, and mental growth and development of the individual always associated with the deficiency of pituitary function. The author regards mongolism as a pituitary counterpart of thyroid cretinism and calls it pituitary cretinism. The congenital failure of pituitary functions leads to failure of growth manifest in the characteristic acromicria—the opposite of acromegaly. In the first chapter the author discusses the history, frequency, and terminology of mongolism and cretinism and points out the misconception under which the earlier studies of mongolism have been undertaken. The term, "mongolism," with its ethnic connotation is a misnomer which, nevertheless, influenced a great deal of speculative thinking of physicians in earlier times. In the second chapter he contrasts the physical characteristics of mongoloids and cretins. The term mongolism was suggested to Langdon Down in 1866 by the quasi-mongolian slant of the palpebral fissure in mongoloid children. The author shows clearly that palpebral fissures in mongolism have nothing in common with the palpebral fissure of the Mongolian race. The apparent slanting is due to the persistence of the fetal "plica marginalis" normally present in many newborn but in mongoloid infants persisting into adult life. The retardation or arrest of growth and development manifests itself in all spheres of the individual's behavior. In the mental sphere this retardation in development is revealed by the persistence of infantile traits, a childlike emotional affective disposition, stubbornness, suggestibilty, and characteristic propensity to mimic the behavior of others. The productive behavior, and hence the occupational potentialities of mongoloids, remains at the level of their mental age, which usually remains below 7 years and, without treatment, rarely exceeds 5 years.

The chapters on the nervous system and on endocrine pathology are the core of the book and contain much new and original material which should be of interest, not only from the point of view of pathogenesis of the two conditions discussed but from the point of view of neuropathology and endocrinology in general. The author points out and proves with detailed observations the disturbances in the skeletal growth, especially that of the skull which he considers as highly characteristic in mongoloids. Hand in hand with the cranial malproportions there are characteristic morphologic features in the central nervous system, especially the brain. The cerebral abnormalities manifest themselves in the organogenesis of the brain: flattening and distortion of convolutions, fusion of fissures, and malformations and insufficient myelination of the cerebellum being the outstanding findings. These cerebral and cerebellar abnormalities explain the general hypotonia so characteristic of mongoloids. Metabolic abnormalities in the brain led the author to the conclusion that the chief disorder of metabolism in mongoloids is the deficiency

in oxygenation and carbohydrate metabolism. The disorder of brain metabolism during fetal life results in dwarfism and stunted growth of the nervous system according to the biological laws which govern the arrest of physical growth. In contrast to cretinism in which the pituitary tends to be enlarged, in mongoloids the pituitary is hypoplastic. The author divides the pituitary abnormalities into two groups, those due to failure of differentiation of secretory cells, and those due to the failure of secretory activity. The author regards the endocrine disorder in mongolism as a congenital type of hypopituitarism associated with a congenital gonadal hypofunction. The entire endocrine system and the endocrine regulation of bodily processes is affected. Male gonads show failure of spermatogenesis, testicular hypoplasia, and evidence of degenerative changes. The anomalies in female gonads were as conspicuous and of the same order. Chapter VI deals with general pathology of visceral systems—liver, heart and blood vessels, lungs, kidneys, thymus (always hypoplastic), and with general organ development. Chapters VII and VIII are concerned with the growth and development of the cranium, based on craniometric and x-ray studies of skulls of mongoloids and cretins. In Chapter IX the author presents the results of his extensive biochemical and hematological observations. In Chapter X the relationship between the state of maternal health, age, and birth order of the child and the incidence of mongolism is discussed on the basis of clinical and statistical data supplied by a series of over 300 families and showing that the maternal condition at the time of pregnancy is the decisive factor in the pathogenesis of mongolism. Mongolism occurs under the same conditions which lead to abortion, prematurity, and hormonal sterility. In Chapters XI and XII the author discusses the rationale and methods of prevention and treatment of mongolism. The usefulness and importance of this book far exceed the limits of the narrow field to which it is dedicated.

PAUL I. YAKOVLEV, M. D.,
Walter E. Fernald State School,
Waverley, Mass.

TECHNIQUE OF PSYCHOANALYTIC THERAPY. By *Sandor Lorand, M.D.* (New York: International University Press, 1946.)

This book is the outgrowth of Dr. Lorand's course in technique which he gives regularly at the New York Psychoanalytic Institute.

Outstanding in this book is the absence of any rigid rules. The author consistently stresses flexibility—flexibility implemented by a thorough personal analysis as well as accumulative experience. However, this flexibility must take place within the framework of the Freudian conception of psychodynamics.

Paramount emphasis is laid on the transference situation and its correct analysis. Thus, under chapters headed Anxieties and Phobias, Sexual Difficulties in the Male, Sexual Difficulties in the Female, Compulsion Neuroses, and Neurotic Depressions, the author points out the patterns that transference takes in those clinical categories. The analyst must be ever sensitive to the transference situation and its correct analysis.

The author's chapter on countertransference reflects his great experience in psychoanalytic technique. As a training analyst, he has had the opportunity to observe the innumerable pitfalls of the young analyst, and in this chapter he records the stumbling blocks which are encountered.

This book answers many questions but leaves a good number unanswered. However, the psychoanalysts apparently do not intend to spoonfeed students. Too many broad statements are made which require better elaboration. Analysts, in building up a thesis, have a most disconcerting manner of stating, "Of course, this means . . . " or "it is obvious that . . . . " The author is no exception. Unfortunately, those deductions are not as obvious as the author implies. It may be obvious to him and to other trained analysts, but certainly not to the student.

To those who have a good groundwork in Freudian psychoanalysis, this book is highly recommended.

MORRIS GRAYSON, M. D.,
Bellevue Hospital, New York.

IN MEMORIAM

CLARENCE ORION CHENEY

1887-1947

Clarence O. Cheney, a former president of the American Psychiatric Association, died at White Plains, N. Y., on November 4, 1947 at the age of 60 years. He is survived by his wife and son.

Dr. Cheney was born in Poughkeepsie, July 10, 1887, had his preliminary education in the schools of that city, and graduated from Columbia University, receiving an A.B. with honors, in 1908. He pursued his medical course at that university and received his M.D. in 1911. He soon went into neuropsychiatry, serving at the Manhattan State Hospital on Wards Island, where he made notable contributions. His earliest interest was in neuropathology. He embarked on the clinical field and in 1917 became the assistant director of the Psychiatric Institute. He did much to explode the claims of the supporters of the rôle of focal infection, then a point of major interest.

In 1922 he opened Marcy State Hospital, then operated as a division of the Utica State Hospital, on the staff of which he was the assistant superintendent. By competitive Civil Service examination, he was at the head of the list and he was, in 1926, made superintendent of the Hudson River State Hospital at Poughkeepsie, the city of his birth. He had there five years of distinguished administration and, somewhat against his own wishes, he was appointed director of the Psychiatric Institute which in the meantime had become a part of the Columbia-Presbyterian Medical Center occupying a new building erected by the State. It was a difficult task, involving as it did active participation in the evening duties in addition to a full day of supervision and teaching. He began to feel the strain and after five years left New York State service to become superintendent of the Westchester Division of the New York Hospital (Bloomingdale). That was in 1936 and for ten years he directed the activities of that important institution adding lustre to the record of a list of distinguished predecessors. Continuing ill health caused him to resign in 1946.

Dr. Cheney was a scientist and the broad base of his knowledge made him an outstanding teacher. He was consulting psychiatrist to several hospitals, notably the New York Hospital and Bellevue. He had many academic appointments. After experience as an instructor in psychiatry at Cornell University and Syracuse University, he came to head the department of psychiatry at Columbia during his Institute service and to be professor of clinical psychiatry at Cornell while he was superintendent of the Westchester Division of the New York Hospital.

He was a member of all the local psychiatric societies, ultimately becoming president of most of them, a long-time Fellow of the American Psychiatric Association and after five years as secretary-treasurer, he became its president in 1935-36. He was a Fellow of the American Board of Psychiatry and Neurology and in 1944 was honored by receiving the Columbia University Medal for distinction in Psychiatry. For years he was on the editorial boards of the American Journal of Psychiatry and the Psychiatric Quarterly and he rewrote the medical portion of the Statistical Guide, a widely used publication. The list of his extracurricular activities is long, including the Rotary and Kiwanis Clubs. He liked people, they liked him, and his name and influence were sought in all kinds of civic matters. From nothing of real importance was he excluded.

Cheney was a grand person. His impressive demeanor, his sober judgment, his wide knowledge, and the deep respect of his associates won for him an outstanding place in professional circles. On a holiday or at a festive meal, he was a good companion, too. He was the type which men desire to have on a fishing trip. That tells the story.

Clarence O. Cheney sleeps in the family plot at Poughkeepsie, N. Y., having crowded much into a life too early ended.

FREDERICK W. PARSONS, M.D.

RICHARD HENRY HUTCHINGS

1869-1947

As it must to all men, death came to Dr. Richard H. Hutchings, on October 28, 1947, after an illness of only a few days. He had been active in his profession except for a brief period prior to his passing, and it may truly be said of him that "he died with his boots on."

He was born in Clinton, Georgia, August 28, 1869. His father, whose name he bore, was descended from a pioneer Georgia family that emigrated from Virginia soon after the American Revolution. His mother, Cornelia Greaves, a native of the same county, was the daughter of Joseph Greaves, a Tennesseean, and of Mary Shorter, whose family were prominent in the affairs of Georgia and Alabama.

Shortly after the birth of Richard Henry, the family moved to Macon, Georgia, and Richard had barely reached the age of five when his father died. Being the youngest of six children, his two brothers having died in infancy, his early development was much influenced not only by his devoted parents but especially by three older sisters, from one of whom he acquired a love of flowers that he retained to the end; from his second sister, who was one of the teachers in a small private school in Macon that he attended, his intense interest in the classics.

In 1887, at the age of eighteen, he graduated from Middle Georgia Military School at Milledgeville and, after a year in Georgia University, entered Bellevue Medical College, receiving his degree of Doctor of Medicine in 1891. Followed a year of interneship at the Almshouse Hospital on Blackwell's Island and his appointment in April, 1892, as physician to the City Asylum on Ward's Island (now Manhattan State Hospital).

Here he came under the influence of Dr. William Austin Macy, one of the pioneer superintendents in what is now the New York State Department of Mental Hygiene, who recommended him to Dr. Wise, then superintendent of the new state hospital at Ogdensburg, N. Y. Thus on May 24, 1892, Dr. Hutchings became a member of the staff of the St. Lawrence State Hospital, where he rapidly passed by promotion through the various grades. In September, 1903, at the early age of thirty-four, he was made superintendent, remaining in that position until, in February, 1919, he was appointed superintendent at the Utica State Hospital.

He very early in his career manifested unusual scientific interest and curiosity, evidence of which we find in his investigation in 1903 of the cause of a typhoid epidemic at the hospital when he demonstrated, for the first time on record, that typhoid bacilli could be carried in ice.

The St. Lawrence State Hospital, under Dr. Hutchings' superintendency, grew rapidly in patient population and in its facilities and efficiency. He was one of the first superintendents to recognize the advantages of voluntary admissions, as a result of which the rate of such admissions at St. Lawrence exceeded that of most, if not all, of the other state hospitals.

In 1909, the first regularly conducted clinic at a New York state hospital for advice and treatment of community patients was established by Dr. Hutchings at Ogdensburg. He was likewise a pioneer in providing habit training and recreation for the otherwise idle and deteriorated patients; and he assigned a trained musician to promote the dissemination of music throughout the hospital wards. In 1907, he headed a committee to revise the statistical tables and to formulate recommendations for the preparation of annual reports, and he continued as chairman of the permanent Committee on Statistics and Forms until his retirement from the state service.

Dr. Hutchings made an enviable record in the Medical Corps, U. S. Army, during World War I, serving in various important capacities from August, 1917, to February, 1919, attaining the rank of major.

Coming to the Utica State Hospital in 1919, in addition to his many duties and activities there he directed the construction and development of the Marcy State Hospital until 1931, when by legislative action it was made a separate hospital.

Dr. Hutchings was a natural-born leader and administrator. He was President of the Associated Charities in Utica (now the Family Association) and President of the Torch Club of Utica. Under his guidance the train-

ing school for nurses at St. Lawrence State Hospital was developed to a high degree of efficiency. Shortly after coming to Utica he assisted in the organization, and was first President of the Board, of the Central Training School for Nurses, in which state hospital nurses secure their preliminary training with pupil nurses of the general hospitals of Utica.

From 1908 until he retired in 1931, he was lecturer in psychiatry with the College of Medicine of Syracuse University; and in 1933, as a token of appreciation for his many years of service on the teaching staff, he was appointed Professor Emeritus of Clinical Psychiatry. He was eminently qualified as a teacher, not only because of his wide clinical experience but more especially by virtue of his broad culture and charm and a deep sense of humor that added zest to his presentation. These qualities went far to account for his professional achievement and endeared him to a multitude of students, friends, and professional colleagues.

In order to perpetuate his name and memory at Syracuse University there was organized, in 1938, an undergraduate medical society, the first of its kind at this institution, known as the Richard H. Hutchings Psychiatric Society. By his presence at its meetings and his kindly counsel, he contributed much to the healthy growth of this outstanding milestone in psychiatric progress in the college.

Beyond the stimulating influence he exerted upon the students of the College of Medicine, he contributed an even greater influence upon the young men whom he gathered about him to constitute his medical staff in the hospitals that he served as superintendent. Many of these physicians have won distinction in the field of psychiatry, and not a few are, or have been, heads of institutions in this or other states.

His interest and achievements in the field of community education along mental hygiene lines cover many years. One need only glance at the annual reports of the Utica State Hospital to gain some idea of the vast number of groups he has met in the capacity of lecturer and the many educational committees he headed or actuated by his influence.

While he may not have been one of our most prolific writers, he did contribute much to psychiatric thinking, as editor, since July, 1935, of the Psychiatric Quarterly, the official organ of the New York State Department of Mental Hygiene. His *Psychiatric Word Book,* which went through six editions, was the result of many years of careful thought and earnest research.

Dr. Hutchings served a most successful year as President of the American Psychiatric Association, 1938-1939, and his wise judgment was always subsequently sought as a member of the Council.

In 1939, he retired from the New York State Hospital system after 47 years of distinguished service. He continued in the practice of psychiatry, however, in Utica, until the time of his passing.

Dr. Hutchings' life was influenced by a happy and harmonious family. In 1903, he married Lillie Beall Compton, whom he had known and admired as a girl with her hair down her back. She had come from a prominent Georgia family, her grandfather having been comptroller of the state during the confederacy.

Three children were born to them. Richard Henry, Jr., was a psychiatrist of note in his own name, whose tragic early death from coronary thrombosis in 1938 was a severe blow to his parents and his many friends. His son, who carries on the family name as Richard IV, was born in 1921. Dr. Hutchings' second son, Charles Wyatt, is assistant director at the Manhattan State Hospital, where his illustrious father began his psychiatric career in 1892. The third child, Dorothy Compton (Mrs. Raymond N. Alberts), is a psychiatric social worker with the Family Welfare Society of Schenectady, N. Y.

Only those of his many friends who had the privilege of knowing Dr. Hutchings intimately can really appreciate his many sterling qualities. He was a "real person." A man, coming from pioneer stock, making the most of his heritage, he stood as an eminent physician and psychiatrist whose "footprints on the sands of time" will be guide posts to those whom he has left behind, as well as to future generations yet to come.

H. A. Steckel, M. D.,
Syracuse, N. Y.